IFM-GEOMAR REPORT

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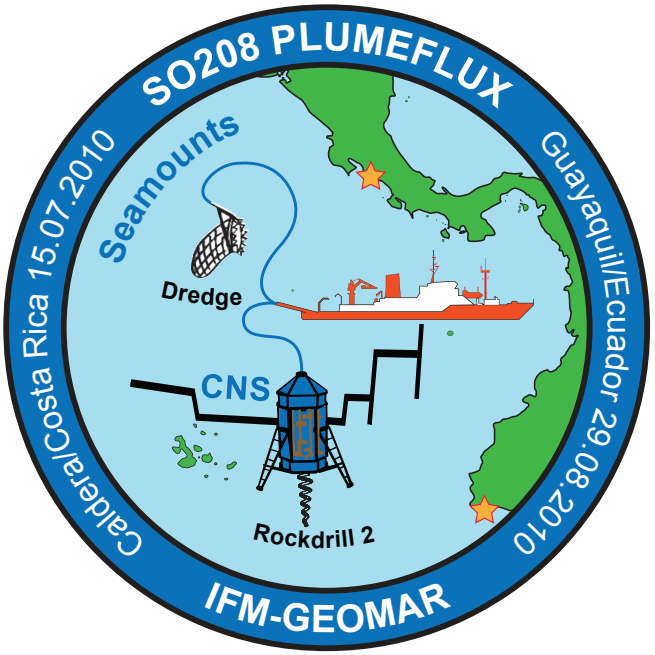
Leibniz-Institut für Meereswissenschaften
an der Universität Kiel

FS SONNE
Fahrtbericht/Cruise Report
SO208 Leg 1 & 2

Propagation of Galápagos Plume Material in the Equatorial East Pacific (PLUMEFLUX)

Caldera/Costa Rica – Guayaquil/Ecuador
15.07. - 29.08.2010



Berichte aus dem Leibniz-Institut
für Meereswissenschaften an der
Christian-Albrechts-Universität zu Kiel

Nr. 39
November 2010

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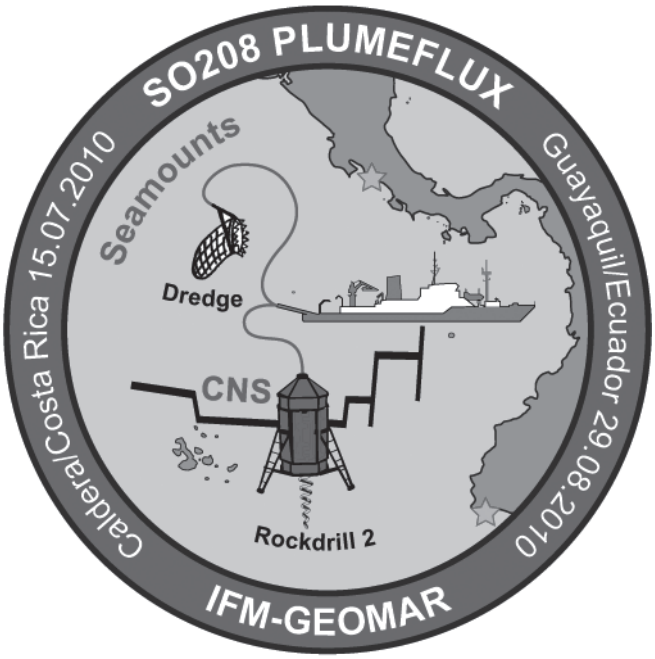

Berichte aus dem Leibniz-Institut
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Nr. 39
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ISSN Nr.: 1614-6298

IFM-GEOMAR
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Das Leibniz-Institut für Meereswissenschaften ist ein Institut der Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz (WGL)

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Herausgeber / Editor:
Reinhard Werner, Folkmar Hauff and Kaj Hoernle

IFM-GEOMAR Report
ISSN Nr.: 1614-6298

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SUMMARY

The research project SO208 PLUMEFLUX (Propagation of Galápagos Plume Material in the Equatorial East Pacific) is funded by the German Ministry of Education and Research (BMBF) and focusses on seamounts on the Cocos Plate, formed at the East Pacific Rise but presently located off the coast of NW Costa Rica and Nicaragua (Leg 1), and on the Cocos-Nazca-Spreading Center (CNS; Leg 2). The studies conducted on cruise SO208 included multi-beam mapping, sediment echo sounding, hard rock sampling, as well as sedimentological and biological sampling. The major geological targets of Leg 1 were (1) to evaluate if the seamounts off northern Costa Rica and Nicaragua were formed by the Galápagos hotspot and thus to constrain the extent of influence by the Galápagos plume on the upper asthenosphere and lithosphere and (2) to constrain better the material input into the Central American subduction zone. Leg 2 aimed to sample profiles of the seafloor perpendicular to the CNS using the mobile drill Rockdrill 2 of the British Geological Survey, in order to reconstruct plume-ridge interaction in the past to complement morphological, petrological and geochemical studies carried out on previous cruises along the ridge axis (e.g. SO158). The integration of the results with existing data should contribute towards a better understanding of transport processes of plume material in the upper mantle and of the geodynamic evolution of the central East Pacific. The sedimentological studies carried out on both Legs of SO208 focussed on radiolarian assemblages.

SO208 startet in Caldera/Costa Rica on July 15th, 2010, and ended in Guayaquil/Ecuador on Auust 29th, 2010. During Leg 1 nineteen seamounts on the Cocos Plate have been mapped and sampled. Within only 12 days at sea, a total of 41 stations (28 dredges, 2 TV grabs, and 11 multicorers) were carried out. Of these deployments, 23 recovered magmatic rocks, 15 volcaniclastics, and 13 Mn-Fe oxides. The samples comprise mainly pillow and sheet lavas, often with fresh glassy margins, and a wide spectrum of volcaniclastic rocks. Notably, we found several indications for explosive volcanic activity at water depths > 3,000 m.

Due to a series of unfortunate circumstances beyond our control, the planned Rockdrill 2 deployment on Leg 2 had to be cancelled. Instead we mapped and collected samples via dredging from 60 localities along five profiles perpendicular to CNS. A total of 83 stations (76 dredges, 3 TV-grabs, and 4 multicorers) were carried out. Of these deployments, 59 recovered magmatic rocks, 3 volcaniclastics, 51 volcanic glass, and 6 Mn-Fe oxides, making this a successful cruise despite the Rockdrill problem. The first and most detailed profile (with 23 sampled localities) extended from the ridge axis to the north at ~92°W. The morphology shows alternating regions of abyssal ridges and valleys (possibly reflecting less plume input into the ridge) and thicker elevated bands commonly containing seamounts, some of which are tectonically deformed (possibly reflecting axial ridge type morphology and thus greater plume input into the ridge). The second profile was carried out at the shallowest part of the ridge axis, closest to the hotspot, just to the east of the 91° Transform Fault. The third profile extended 30 km north of the ridge (at ~89°30´W), where a formerly on-axis seamount has been split in half. We want to evaluate how far in the past the unique enriched geochemical anomaly associated with the seamount persisted in the past. Thirteen sites were successfully sampled along a fourth profile at 89°10'W, extending 35 km north and 35 km south of the CNS into crust up to 500,000 yrs old. This site was selected, because a major depleted geochemical anomaly exists at that location. A final short profile was carried out to the north and south and east (on the ridge axis) of a lava plateau at 88°20'W that represents an enriched anomaly along the ridge axis. The morphology of the area studied on Leg 2 strongly suggests that the intensity of interaction of the plume with the ridge has varied considerably over the last several hundred thousand years along the entire part of the ridge that we studied. Geochemical data should allow us to constrain better variations in plume-ridge interaction through time.

Biological material was obtained successfully as macrofauna and as sediment samples containing meiofaunal organisms with the help of a geological chain bag dredge, sediment traps, a multicorer and a TV-grab. Macrofaunal organisms were recovered at 93 out of 124 stations, 37 stations revealed sediment samples. During the cruise, a total of 8,598 meiofaunal organisms were centrifuged out of about 45 kg of sediment and sorted to animal group. Foraminifera and Nematoda dominated the meiofauna, followed by Copepoda and at a lower abundance by Tardigrada, Kinorhyncha and Loricifera. We also discovered a highly diverse benthic macrofauna, mainly represented by Porifera, Bryozoa, Annelida, Brachiopoda and even a few monoplacophoran molluscs.

ZUSAMMENFASSUNG

Das Forschungsprojekt SO208 PLUMEFLUX (Ausbreitung von Galápagosplumematerial im äquatorialen Ostpazifik) wird vom Ministerium für Bildung und Forschung (BMBF) gefördert und befasst sich mit Seamounts auf der Cocosplatte vor Nord-Costa Rica und Nicaragua (Leg 1) sowie mit dem Cocos-Nazca-Spreizungszentrum (CNS) im Norden von Galápagos (Leg 2). Die Arbeiten während SO208 beinhalteten Fächerecholotkartierungen, Sedimentecholot-kartierungen, Hartgesteins- und Sedimentbeprobungen sowie biologische Untersuchungen. Die geologischen Hauptziele von Leg 1 sind (1) festzustellen, ob die Seamounts auf dem am East Pacific Rise gebildeten Teil der Cocosplatte durch den Galápagos Hotspot gebildet wurden und somit das Ausmaß des Einflusses der Galápagosplume auf die obere Asthänosphere und die Lithosphäre zu charakterisieren und (2) den Input in die zentralamerikanische Subduktionszone besser abzuschätzen. Während Leg 2 sollten Profile quer zum CNS mit dem mobilen Bohrgerät Rockdrill 2 des British Geological Survey beprobt werden, um Plume-Rücken-Wechselwirkungen in der Vergangeneit zu rekonstruieren, womit frühere Untersuchungen (u.a. SO158) fortgesetzt und erweitert werden. Die sedimentologischen Untersuchungen konzentrierten sich auf beiden Legs auf Radiolarien-Vergesellschaftungen.

SO208 begann am 15. Juli 2010 in Caldera (Costa Rica) und endete am 29. August 2010 in Guayaquil (Ecuador). Während Leg 1 wurden 19 Seamounts auf der Cocosplatte kartiert und beprobt. Innerhalb von nur 12 Tagen auf See konnten 41 Beprobungsstationen (28 Dredgen, 2 TV-Greifer, 11 TV-Multicorer) durchgeführt werden, wo von 23 Magmatite, 15 Vulkaniklastika und 13 Mn-Fe-Oxide erbrachten. Die Proben umfassen vor allem Pillow- und Schichtlaven, oft mit frischen Glassrändern, sowie ein weites Spektrum an vulkaniklastischen Gesteinen. Bemerkenswerterweise fanden wir an den Seamounts verschiedene Hinweise auf explosive vulkanische Aktivität in Wassertiefen von mehr als 3.000 m.

Aufgrund von unglücklichen Umständen, die ausserhalb unserer Kontrolle lagen, konnte der für Leg 2 geplante Einsatz des Rockdrill 2 nicht durchgeführt werden. Stattdessen wurden auf Leg 2 60 Lokalitäten entlang von 5 Profilen quer zum CNS kartiert und mit Dredgen beprobt. Von insgesamt 83 Beprobungsstationen (76 Dredgen, 3 TV-Greifer, 4 TV-Multicorer) erbrachten 59 Laven, 3 Vulkaniklastika, 51 vulkanische Gläser und 6 Mn-Fe-Oxide, wodurch Leg 2 trotz der Probleme mit Rockdrill 2 noch zum Erfolg wurde. Das erste und mit 23 Beprobungsstationen am detailliertesten bearbeitete Profil erstreckt sich bei ca. 92°W von der Rückenachse nach Norden. In diesem Gebiet zeigt die Morphologie Regionen alternierender abyssaler Rücken und Täler, die möglicherweise eine nur geringe Zufuhr an Plumematerial zum Rücken reflektieren, und mächtige E-W streichende, häufig mit Seamounts besetzte Erhebungen, die vermutlich eine „axial ridge type“ Morphologie wiederspiegeln und damit eine erhöhte Zufuhr von Plumematerial. Das zweite Profile wurde am höchsten, dem Hotspot nächstgelegenen Teil der Rückenachse bei ca. 90°50´W beprobt. Das dritte, ca. 30 km vom CNS nach Norden reichende Profil befindet sich bei etwa 89°30´W, wo eine ehemaliger „on-axis“ Seamount durch die Ozeanbodenspreizung in zwei Hälften geteilt wurde. Es soll hier festgestellt werden, wie lange die einzigartige angereicherte geochemische Anomalie, die mit diesem Seamount assoziiert ist und die im Rahmen von SO158 identifiziert wurde, bereits exisitiert. Bei ca. 89°10´W exisitiert eine ausgeprägte verarmte geochemische Anomalie. Dort wurden 13 Lokalitäten entlang eines vierten Profils erfolgreich beprobt, dass sich vom CNS jeweils 35 km nach Norden und Süden in bis zu ca. 500.000 Jahre alte Ozeankruste ersteckt. Ein letztes kurzes Profil wurde bei ca. 88°20´W im Bereich eines Lavaplateaus auf der Rückenachse bearbeitet, dass eine angereicherte Anomalie auf der Rückenachse repräsentiert. Insgesamt deutet die Morphologie im gesamten von SO208 untersuchten Bereich stark darauf hin, dass die Intensiität der Plume-Rücken-Interaktion während der letzten ca. 700.000 Jahre stark variierte.

Biologisches Material (Makrofauna und Meiofauna aus Sedimentproben) konnte mit Hilfe von geologischen Dredgen, Sedimentfallen in geologischen Dredgen, einem Multicorer und einem TV-Greifer gesammelt werden. Bereits an Bord wurden 8.598 Meiofauna-Organismen aus insgesamt etwa 45 kg Sediment auszentrifugiert und nach Tiergruppen vorsortiert. Foraminifera und Nematoda dominierten die Meiofauna, gefolgt von den Copepoda und in etwas geringerer Häufigkeit von Tardigrada, Kinorhyncha und Loricifera. Eine hochdiverse Makrofauna wurde ebenfalls gefunden, dominiert von den zu erwartenden Gruppen Porifera, Bryozoa, Annelida, Brachiopoda und sogar drei Vertretern der Monoplacophora (Mollusca).

1. ACKNOWLEDGEMENTS

We would especially like to thank Captain Meyer and the crew of the R/V SONNE. Their hard work, high level of experience, willingness to help, and the pleasant working atmosphere on board contributed significantly to the success of SO208. In particular we acknowledge their heroic efforts to solve the myriad of problems related to the Rockdrill mobilization. Above all, we are grateful for their highly professional support carrying out an alternative program on very short notice that assured that this was a successful cruise, despite the failure to deploy the Rockdrill and having lost 10 working days in attempting to mobilize the Rockdrill.

Asmus Petersen (IFM-GEOMAR) and Klaus Müller (Hatlapa) are gratefully acknowledged for their efforts and great engagement by the attempts to mobilize Rockdrill. We also would like to thank the Leitstelle Meteor/Merain and Laeisz shipping company for providing the mobile Meteor friction winch and for their excellent support during the preparation of the winch for the deployment on SO208. The Alfred Wegener Institute (AWI) kindly provided ships time on R/V Polarstern to test the winch. We thank Captain Pahl, chief scientst Saad el Naggar and the crew of R/V Polarstern for their enormous support in this matter.

We are very grateful to Scott White, Heinrich Villinger, and Wilhelm Weinrebe for providing bathymetric data and maps for the research project SO208 PLUMEFLUX, all of which contributed to the achievement of the cruise objectives.

We thank the Governments of Costa Rica, Ecuador, Nicaragua, and San Salvador for granting permission to work within their territorial waters. We also gratefully acknowledge the support he German Foreign Office and the German Embassies in this matter.

The SO208 PLUMEFLUX project is funded by the “Bundesministerium für Bildung und Forschung” (BMBF) project award to Prof. Kaj Hoernle and Dr. Folkmar Hauff.

The shipping company “RF Forschungsschiffahrt GmbH” kindly provided the travel and board costs for two scholars from Kiel who participated in SO208 Leg 1 in the framework of a school project.

The “Freunde und Förderer des Museums für Naturkunde e.V.” and the “Johanna und Fritz Buch Gedächtnis-Stiftung” are gratefully acknowledged for financial support to buy a dissecting microscope Zeiss Stemi 2000. Birger Neuhaus also thanks “Thermo Electron Corporation” for special conditions when purchasing a large-volume centrifuge.

2. PARTICIPANTS

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Großmann, Matthias	Chief Electronican	Krawczak, Ryszard	Motorman
Ehmer, Andreas	Systems Manager	Blohm, Volker	Fitter
Borchert, Wolfgang	Systems Manager	Rieper, Uwe	Electrician
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Wieden, Wilhelm	2nd Cook	Eidam, Oliver	Apprentice
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The SO208 Leg 1 Shipboard Scientific Party.

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On board for mobilization of Rockdrill 2 and Hatlapa friction winch:

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Baxter, David	Rockdrill Team	BGS
Gillespie, Eileen	Rockdrill Team	BGS
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3. MAJOR OBJECTIVES AND BACKGROUND OF SO208 PLUMEFLUX

(R. Werner, K. Hoernle, F. Hauff, A. Herbrich, B. Neuhaus, C. Lüter)

The research project SO208 PLUMEFLUX comprises investigations of volcanic and tectonic structures, magmatic rocks, deep sea sediments and marine organisms in the central East Pacific. PLUMEFLUX (http://www.ifm-geomar.de/index.php?id=5826&L=1) uses a multi-disciplinary approach to better understand transport mechanisms of plume material in the upper mantle, the geodynamic evolution of the central East Pacific, and the biodiversity and zoogeography in this area. The geological studies carried out on R/V SONNE cruise SO208 focused on multi-beam mapping of the ocean floor, sediment echo sounding, and sediment and hard rock sampling. Leg 1 was primarily a reconnaissance study to map and dredge seamounts on the part of the Cocos Plate being formed at the East Pacific Rise (EPR), which is located to the northwest of the Cocos Ridge off northern Costa Rica and Nicaragua (Fig. 3.1). Leg 2 focused on mapping and hard rock sampling at the Cocos-Nazca (or Galápagos) Spreading Center (CNS) in the area north of the Galápagos archipelago (Fig. 3.1). The ocean crust is formed at mid-ocean spreading centers and therefore it increases in age going away from the spreading center. It was planned to use the British Geological Survey (BGS) Rockdrill 2 to drill transects perpendicular to the spreading center until the sediment thickness exceeded the maximum drilling depth of 15 meters, allowing the last several hundred thousand years of formation of the ocean crust to be sampled. The methods used to analyze the rocks obtained on both Legs of SO208 will include volcanological and petrological analyses, Ar/Ar age dating, major and trace element analyses, and Sr-Nd-Pb-Hf-isotope and U-series analyses. In addition, extensive analyses of the swath bathymetry will be carried out. The major objectives of these studies are to improve our understanding of:

(1) The origin and age of the seamounts situated on the Cocos Plate off northern Costa Rica and Nicaragua. In particular it should be determined whether these seamounts are “off-axis” seamounts of the East Pacific Rise or developed due to intra-plate volcanism, which may be associated with the Galápagos plume.
(2) The flux and spreading of Galápagos plume material beneath the Cocos Plate.
(3) The material input into the Central American subduction zone.
(4) The interaction of mantle plumes with the upper mantle, i.e. variations in the interaction of the Galápagos hotspot and the CNS through time and the nature of transport mechanisms controlling the migration of plume material towards and along the CNS.

The integration of these results with existing data should contribute towards a better understanding of transport processes of plume material in the upper mantle and of the geodynamic evolution of the central East Pacific.

The sedimentological studies carried out on SO208 Leg 1 and 2 focus on radiolarian assemblages. The studies mainly aim to compare the assemblages sampled in the SO208 working areas to existing studies from adjacent areas and to reconstruct paleotemperatures of both surface and deepwater dwellers by stable isotope and trace element analyses on particular species.

The biological studies focus on the biodiversity and biogeography of benthic meio- and macrofaunal key groups such as Kinorhyncha, Loricifera, Porifera, Brachiopoda, and Bryozoa. The investigations complement results of the previous expeditions SO144-3 and SO158 to neighbouring areas in the Cenral American East Pacific. These three expeditions provide the basis for a potential long-time monitoring of benthic organisms in the wider Galápagos area. The intended studies on the species composition and on potential colonization patterns of seamounts and dispersal patterns of benthic invertebrates may help to characterize highly diverse benthic communities of East Pacific seamounts, which also alludes to the discussion of seamounts as fishing grounds.

The data on the biodiversity and biogeography of benthic species gained during the current expedition will be used for testing the following hypotheses: The CNS may represent a barrier for the distribution of holobenthic groups such as Kinorhyncha which may only be overcome at transform faults. On the contrary, merobenthic groups settling on hard substrates such as Brachiopoda may use the mid ocean ridges as highways for distribution (Lee et al. 2008). Seamounts may serve as stepping stones for highly dispersive species in the deep sea.

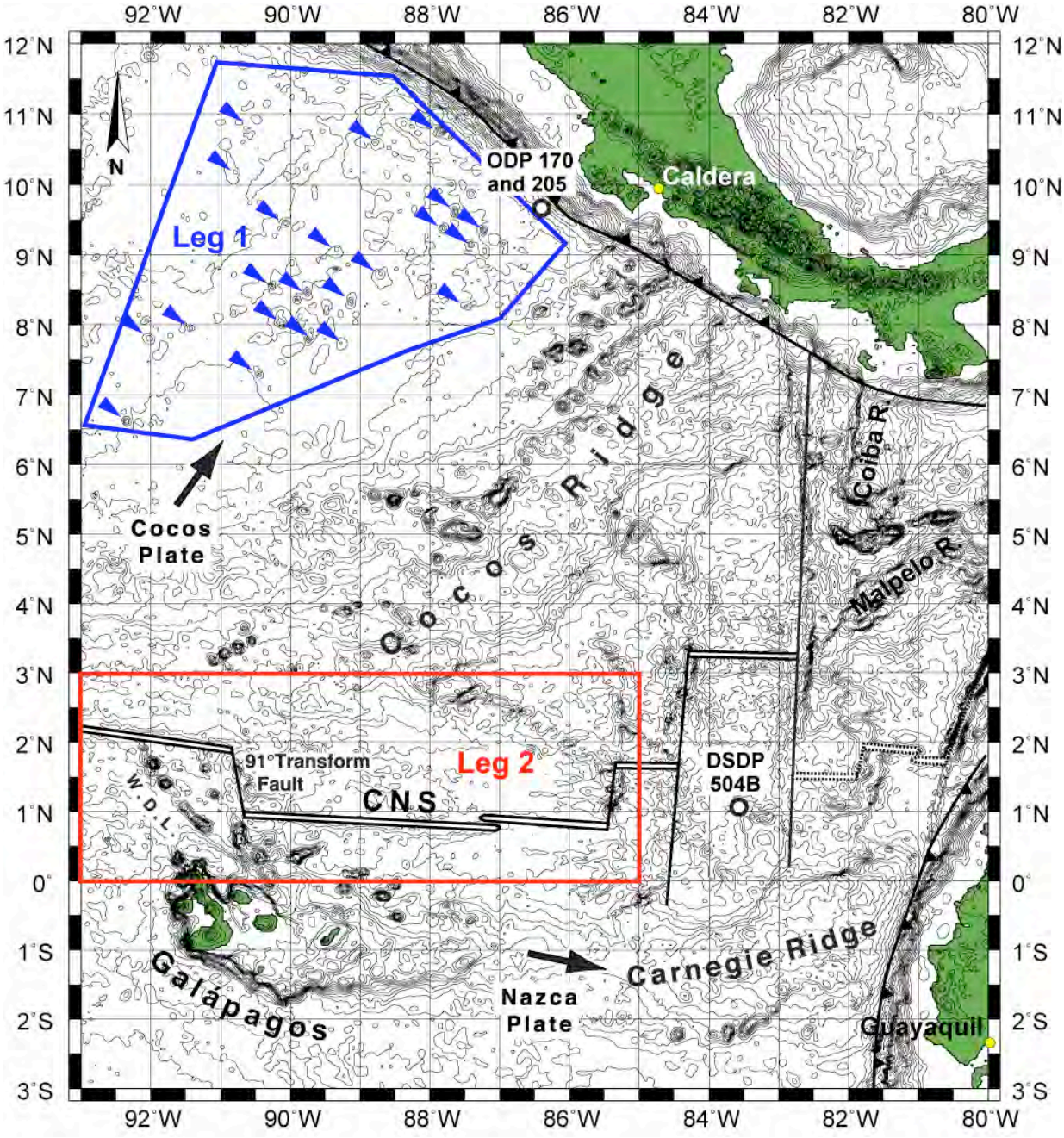

Fig. 3.1.: *Overview bathymetric map of the central East Pacific including the working areas of SO208 Leg 1 (blue) and Leg 2 (red). The blue arrows mark some of the seamounts off northern Costa Rica and Nicaragua. The bathymetry is based on the Etopo data set (Smith and Sandwell 1997); CNS = Cocos Nazca Spreading Center.*

3.1. THE GALÁPAGOS PLUME - CNS SYSTEM

The Galápagos plume - CNS system is predestinated for the investigations of SO208 PLUMEFLUX since an extensive high quality data set already exists for the recent Galápagos hotspot, its hotspot tracks, and the ridge axis of the CNS. Particulary notable is the asymmetric, long term geochemical zonation of the Galápagos plume. Three geochemically enriched provinces (Northern, Central and Southern) form a horseshoe-shaped area, which encloses a depleted mid-ocean-ridge-basalt (MORB)-like Eastern domain (e.g. White and Hofmann 1978, Geist et al. 1988, White et al. 1993, Graham et al. 1993, Hoernle et al. 2000, Harpp and White 2001, Blichert-Toft and White 2001, Geldmacher et al. 2003, Werner et al. 2003). The distinct incompatible trace element patterns and Sr-Nd-Pb-Hf isotopes signatures of Galápagos are globally unique so that the Galápagos plume material can be clearly identified and transport mechanisms can be reconstructed.

Since the Miocene the evolution of the Galápagos hotspot is significantly affected by interaction with the CNS. The CNS is located north of the Galápagos Archipelago and separates the Cocos and Nazca Plates. The plume-ridge interaction resulted in the formation of two hotspot tracks, the Cocos Ridge on the Cocos Plate and the Carnegie Ridge on the Nazca Plate (Fig. 3.1.; e.g. Hey 1977, Lonsdale and Klitgord 1978, Wilson and Hey 1995, Meschede and Barckhausen 2000, Barckhausen et al. 2001, Werner et al. 2003). Previous studies (among them SO107 PACOMAR and SO144-3 PAGANINI; e.g. Werner et al. 1999, Hoernle et al. 2000, Werner and Hoernle 2003, Werner et al. 2003, Geldmacher et al. 2003, Harpp et al. 2005, O´Connor et al. 2007) revealed that both hotspot tracks show significant differences in their morphology as well as in their geochemical composition, interpreted as a consequence of the relative position of the spreading center to the hotspot but not due to a variation of the geochemical composition and zonation of the Galápagos hotspot which is believed to exists since at least 20 mill. years.

The ridge axis (= zero age) of the CNS in the area north of the Galápagos Archipelago has been investigated and sampled in detail on RV SONNE cruise SO158 MEGAPRINT (eastern CNS), RV EWING cruise EW004 G-Prime (western CNS), and several older cruises by Schilling et al. These cruises and subsequent laboratory studies revealed large scale and systematic variations in bathymetry, major and trace element composition, ratios of incompatible elements, and Sr-Nd-Pb-Hf isotope ratios along the CNS between 83°W and 105°W (e.g. Verma & Schilling 1982, Verma et al. 1983, Detrick et al. 2002, Schilling et al. 2003, Sinton et al. 2003, Hauff et al. 2002, 2003, Christie et al. 2005, Kokfelt et al. 2005). SO158, for example, revealed several geochemical anomalies between 90°30´W and 92°00´W. Each of these anomalies can be related to one of the distinct geochemical domains of the Galápagos plume or to mixing of distinct domains (e.g. Hoernle et al. 2003, Hauff et al. 2006). Further to the east, the plume-indicative parameters decrease as expected with increasing distance to Galápagos but significant local anomalies still exist for example at 89°30´W, 89°12´W, and 88°20´W. Interestingly, morphological parameters and U-series data indicate that the anomalies with enriched signatures at 89°30´W and 88°20´W are at least 43,000 years older than associated, less enriched basalts (Kokfelt et al. 2005). However, up to now it is unclear to which extend these anomalies are driven by local variations in composition and length of the melting column or by large-scale processes like (pulsating?) transport of Galápagos plume material towards and along the CNS.

3.2. LATERAL MIGRATION OF GALÁPAGOS PLUME MATERIAL

Like in other hotspot areas (Hawaiian Islands, Canary Islands) the Galápagos plume material presumably migrates laterally over large parts of the mantle. Previous investigations indicate that parts of the equatorial East Pacific Ocean are influenced by material of the Galápagos hotspot system. Both off the coast of Costa Rica and Panamá as well as at Deep Sea Drilling Program (DSDP) site 504B south of the Costa-Rica Rift (Fig. 3.1) rocks are found which show characteristic Galápagos signatures in their chemical composition (e.g. Pedersen and Furnes 2001, Abratis and Wörner 2001, Hoernle et al. 2008, Sadofsky et al. 2008). Notably, sills drilled on Ocean Drilling Progam (ODP) Legs 170 and 205 off northern Costa Rica (Fig. 3.1) also show Galápagos isotope signatures (e.g. Chavagnac et al. 2003, Sadofsky et al. 2008), indicating that Galápagos plume material migrated over the tectonic boundary between the parts of the Cocos Plate formed at the CNS and the EPR, respectively. Additionally, within the Cocos and Carnegie Ridge hotspot tracks unusually young lavas occur (O'Connor et al. 2007), which show the geochemical characteristics of magmas from the Galápagos plume. Remarkably, these lavas do not fit into the geochemical zonation pattern of the older hotspot lavas. This leads to the conclusion, that the plume material is probably not transported laterally through passive attachment at the base of the lithosphere, but rather active migration mechanisms are responsible for the subsequent movement of plume material in these areas. However, it still remains uncertain which processes are involved in these lateral mass movements.

3.3. SEAMOUNTS OFF NORTHERN COSTA RICA AND NICARAGUA

Approximately 150 – 500 km northwest of the Cocos Ridge the abundance of seamounts on the part of the Cocos Plate created at the EPR is much higher than expected for “normal” ocean crust formed at mid ocean ridges away from hotspots (Fig. 3.1.). For the first time some of these seamounts have been mapped on the RV EWING cruise EW 0104 in 2001 and a RV MELVILLE cruise in 2002. Heat flow measurements concucted on these cruises show unexpectedly low heat flow rates of the ocean crusts which have been attributed to increased fluid flow at the seamounts (Cruise Report TicoFlux I, EW0104; Fisher et al 2003). Up til now rock samples from these seamounts do not exist and their origin, age and evolution is enigmatic. However, the discovery of Galápagos plume material off northern Costa Rica (see chapter 3.2.) may point to a possibe involvement of plume melts in their formation.

4. CRUISE NARRATIVE

(R. Werner, K. Hoernle)

The starting point for Leg 1 of the R/V SONNE cruise SO208 was the port of Caldera on the Pacific coast of Costa Rica (Fig. 4.1.). On the morning of July 15th, 18 scientists from Germany, Switzerland and the United States, took a spectacular bus ride from San José, the capital of Costa Rica located at an elevation of ~1,200 m, down to the coast to board R/V SONNE. On the same day at ~2:00 pm R/V SONNE left the port. By noon the next day the SONNE sailed west approximately 250 nautical miles (nm) and arrived at the first workstation. Under heavy tropical thunderstorms and little time it was managed to prepare all laboratories and devices punctually thanks to the excellent support from the SONNE crew.

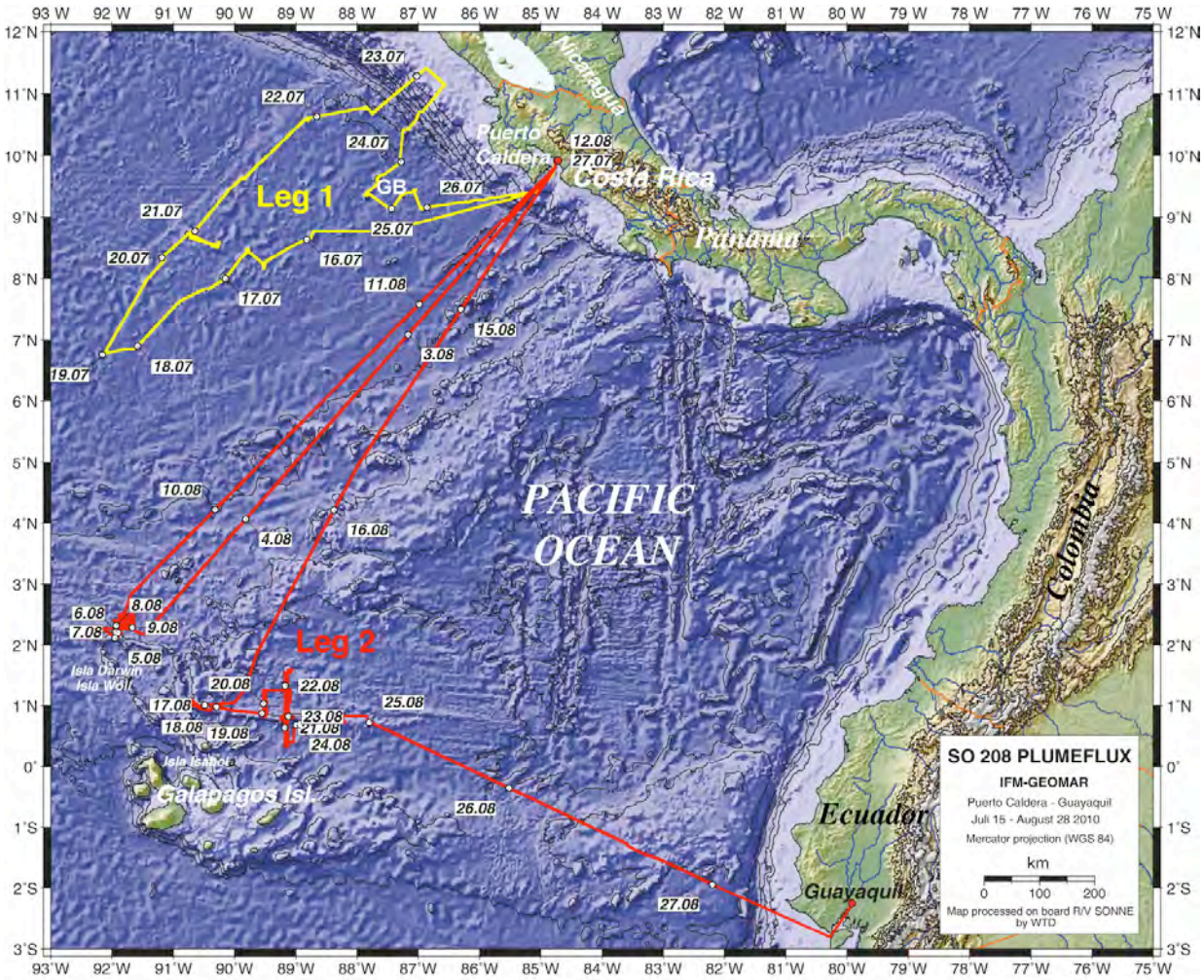

Fig. 4.1.: *Cruise track for SO208 Leg 1 and 2 (GB = Guardian Bank).*

The first seamounts mapped on this cruise proved to be shallow disc-like structures measuring several kilometers in diameter and a few 100 m in high. Despite their gentle slopes, a dredge haul yielded pillow lavas and volcaniclastic rocks from one of these seamounts. Approximately 20 nm further to the north-east a dredge recovered pillow lavas with fresh glassy rims, massive sheet lava fragments, and volcaniclastics from a ~1,000 m high, sickle-shaped volcano. Afterwards two TV-Multicorer (MUC) deployments on the top of a seamount and on the adjacent abyassal plain yielded sediments for biological and sedimentological studies. The visability gained with the TV-MUC saved a lot of time by obviating testing the suitability of the ocean floor. Additional improvements to the MUC's trigger-mechanism increased the amount of sediment yielded during subsequent samplings (Fig. 4.2.).

While heavy showers and wind up to 6 Beaufort made the acclimatization and work more difficult for us during the first days, nearly calm sea and partly cloudy or sunny weather

provided for perfect working conditions for the rest of Leg 1. In the early evening of July 17th R/V SONNE arrived in an area where previous bathymetrical mapping was carried out by the preceding SONNE cruise SO207 and in the late nineties by the U.S. research vessel EWING. We are very grateful to the SO207 scientists who have laid these data to our disposal. Notably the bathymetry reveals several circular structures with large central craters in 3,500 – 3,800 m water depth besides the already known shallow disc-like structures and irregular or cone-shaped volcanoes (see chapter 5.2.1.). These volcanoes (called “donuts” by cruise participants) measure up to 4 km in diameter and are up to 500 m high. The diameters of the central craters are up to ~1.5 km. A TV-grab profile of the crater, from the top to the bottom, showed a vertical 50m wall. Dredge hauls at these structures yielded various volcaniclastic rocks and lava fragments with highly vesicular clasts.

Fig. 4.2.: *Samples of the sediment surface from the abyssal plain, yielded by the TV-MUC from more than 3,500 m water depth.*

Fig. 4.3.: *Fragments of pillow basalts dredged from a seamount located at 07°57,0´N, 90°28,0´W.*

On July 19th R/V SONNE arrived at the westernmost workstation of the SO208 Leg 1, ~430 nm off the Central American coast. After completing a successful biology sampling using the TV-MUC, we began to map and sample seamounts along a profile extending to the Central American trench. The dredge hauls at the seamounts on this profile yielded mainly pillow and minor sheet lavas (Fig. 4.3.) as well as various volcaniclastic rocks, which frequently contained fresh glassy rims or glass fragments. Such unaltered glasses are in particular suitable to identify the original composition of the melts. Furthermore two TV-MUC stations and one TV-grab have successfully been carried out along this profile. At the termination of the profile we investigated a seamount that is about to enter the trench. Due to the bending of the oceanic plate in this area, this seamounts is sliced by several, trench parallel fractures that cut deep into the volcano. They provide perfect conditions for dredge sampling, so that we were able to recover lavas from its base (= presumably the oldest units of the seamount), its central part and its top (= youngest units). These samples will most likely allow us to evaluate compositional changes of the magma source during the formation of the seamount and for how long this volcano was active.

In the afternoon of July 23rd R/V SONNE headed towards the continental shelf off Nicaragua where two successful MUC stations were conducted. After sampling of another seamount being located close to the trench, we reached the Guardian Bank (Fig. 4.1.) at noon on July 24th. Nautical maps show many very shallow spots in this area with water depths of partly less than 10 meters. These shallow spots could not be confirmed along our ship´s track. Still this area is characterized by many seamounts. Mapping of seven of this seamounts revealed that their tops rise not more than ~2,000 m below sea level. Sampling was successful at all 7 seamounts. Among the rocks found in the dredges pillow lavas and various volcaniclastic rocks dominated again. The last sampling station on Leg 1 was a successful MUC deployment on the abyssal plain approximately 100 nm of the Costa Rican peninsula Nicoya.

In the evening of July 26th, the shut down of multi beam recording marked the end of the scientific work of SO208 Leg 1. Already on the next morning at 8:00 a.m. R/V SONNE entered again the port of Caldera. Within only 12 days at sea, SO208 Leg 1 has achieved its major goals, i.e. bathymetric mapping and reconnaissance hard rock sampling of seamounts on the Cocos Plate off northern Costa Rica and Nicaragua, as well as sampling of sediments and the marine fauna in this area. Complementing 1,537 nm of SIMRAD EM120 profiling, a total of 41 stations (28 dredges, 2 TV grabs, and 11 MUCs) were carried out in an average water depth of 2,800 m. Of these deployments, 23 recovered magmatic rocks, 15 volcaniclastics, and 13 Mn-Fe oxides. In particular we are lucky that 18 dredges yielded fresh volcanic glass.

Fig. 4.4.: *Back in Caldera: Mobilization of Rockdrill 2 for the second leg of SO208.*

Fig. 4.5.: *Welding operations to install a cross beam for Rockdrill into R/V SONNE´s A-frame.*

The beginning of SO208 Leg 2 was largely spent in Caldera. Here we said good-bye to 8 Leg 1 scientists who flew back into their home countries, and we welcomed 3 scientists, an Ecuadorian observer, 2 German technicans, and 8 engineers and technicans of the British Geological Survey on board who immediately started to mobilize the Rockdrill 2 system (Fig. 4.4.). Rockdrill 2 is a mobile drill device which should be deployed on Leg 2 at the CNS to the north of the Galápagos Islands in up to 3.000 m water depth. Frequent heavy tropical rains significantly hampered work with the mobilization of the Rockdrill and welding activity on the deck. Nevertheless, welding activity to provide a stable base for the rock drill winches and places to connect a crossbeam in the A-frame at the rear of the ship, to be used for deployment and recovery of the rock drill, was successfully completed (Fig. 4.5.). Unfortunately mobilization of the Rockdrill could not proceed, because it was not possible to get a berth alongside the pier for four days due to heavy container traffic in the harbor. Even more unfortunate was that the Rockdrill was damaged in an attempt to move it with a land crane to the ship in a heavy rainstorm, because it was not properly secured. Neither the ship's crew or the scientific party was involved in this accident. In order to fix the Rockdrill, it was necessary to have a new crossbeam made for the top of the Rockdrill. Since we learned that it will take a minimum of a week to have this part made and shipped from the U.S.A., R/V SONNE left Caldera in the afternoon of August 2nd (Fig. 4.6.) for the CNS where the Wolf-Darwin lineament intersects the spreading center at approximately 92° longitude (Fig. 4.1). In this area, the seafloor bathymetry suggests that it is possible to collect at least a partial profile north of the spreading center with the TV-grab and by dredging. Meanwhile the Rockdrill team stayed in Caldera and continued on land to repair and mobilize the Rockdrill system.

On August 5th R/V SONNE reached the CNS. The station work began with a successful MUC to collect sediments for sedimetological and biological studies and a TV-grab which failed to return samples but was also used to test the Posidonia system of R/V SONNE. Afterwards dredging started on the NE side of a seamount on the axis of the CNS at ~92°W. The seamount had a graben running through the middle of it, representing the ridge axis. Thereafter we focused on sampling smooth ridges (abyssal hills), trending roughly east-west or parallel to the ridge axis. We sampled 18 scarps on such structures, primarily recovering fragments of pillow lavas or sheet flows. Fresh glass was present on the rims of pillows in most dredges. In addition to the seamount on the ridge axis, three other small seamounts, that

were located on abyssal ridges, were sampled by dredging (Fig. 4.8.) or with the TV-grab. Two of the seamounts showed no evidence of having been affected by tectonic activity, suggesting that they formed off-axis, whereas the third is offset left laterally in the middle. Despite the very smooth morphology and partial sediment cover further away from the ridge axis, samples were recovered from 23 locations along the profile with 22 out of 30 dredges and one TV-grab successfully recovering volcanic rock samples. In total the profile covered a distance of 50 km from the ridge axis. If a constant spreading rate of 7 cm/yr is assumed, then the profile covers ~700,000 years of ocean crust formation.

Fig. 4.6.: *Leaving Caldera on 2nd August..*

Fig. 4.7.: *An unusually large (1.5 cm) new species of a snail (Fissurellidae) from 3,000 m depth, found on a boulder of glassy pillow lava.*

On August 9th we have gotten the good news that the replacement part for Rockdrill 2 has arrived in Costa Rica and that the Rockdrill will soon be ready to be deployed. Therefore R/V SONNE left the CNS in the early morning of August 10th and entered again the port of Caldera on August 12th. Immediately after berthing, the ship´s crew and the Rockdrill team started to mobilize the Rockdrill system onboard R/V SONNE. However, due to a series of unfortunate circumstances beyond our control, it became clear that the mobilization and harbor tests of the Rockdrill could not be completed before August 19th. This would have left us with only 2-3 days to deploy the Rockdrill in the study area, which was not enough time to reach the goals of the project. Therefore, the difficult decision was made to cancel the Rockdrill deployment and to leave Caldera again on August 14th. As a result, we had about one week remaining in the study area to obtain additional profiles across the CNS in reduced form via dredging. In consideration of the great success in sampling the first profile through dredging, we were confident that we can still achieve the major goals of the project with this approach.

Fig. 4.8.: *Dredging at night with an uncharacteristically empty deck..*

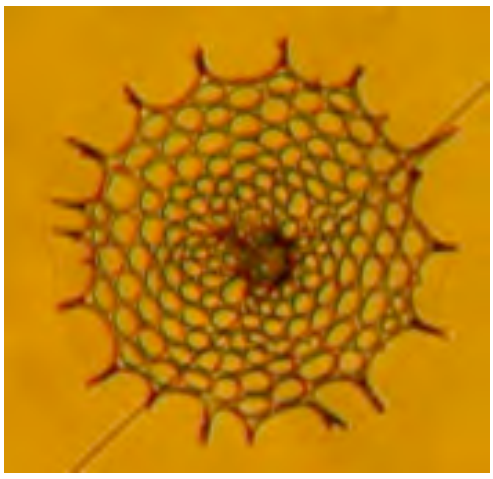

Fig. 4.9.: *“Radiolarian of the Cruise“: Lampromitra quadricuspis*

We used the transit to Caldera and back to the work area to process and evaluate further all the available multi-beam bathymetric data from the study areas (including what we already collected on the SO208 cruise). This allowed us to develop a sampling strategy for effectively and efficiently obtaining additional samples during the remaining part of the cruise. We figured out how to identify, based on the seafloor morphology, the variations in plume input into the spreading center in the past. This allowed us to focus our sampling in order to get the maximum range in plume input with the least number of sampling locations.

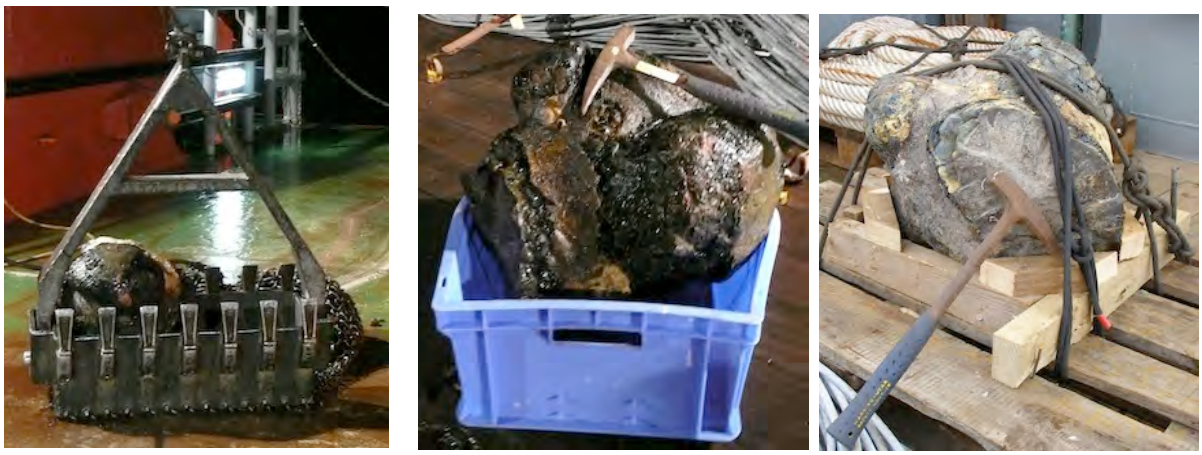

***Fig. 4.10.**: A pillow is caught... ...arrested... ...and tied up.*

In the afternoon of August 17th, we reached the shallowest part of the ridge axis east of the 91°W Transform Fault. Here the ridge axis is closest to the active volcanic islands in the main part of the archipelago and is the location where the most pristine plume material reaches the ridge. We began sampling of our second profile perpendicular to the CNS with a dredge haul on the wall of a large caldera on the ridge axis. The first dredge was almost full, containing pillow fragments with glassy margins. Alltogether 10 locations along this profile were succesfully sampled by dredging. The profile was kept to 15 km, because further north the Cocos Ridge begins, which was extensively sampled during the U.S. American R/V MELVILLE MV1007 cruise in June of this year. During several dredge hauls, we were treated with views of Pinta Island, one of the older islands and a geochemical endmember in the Galápagos Archipelago.

In the early morming of August 20th we reached our third profile at ~89°30´W, extending 50 km north of the CNS into crust that is about 700,000 years old (assuming a spreading rate of 7 cm/yr). At this location, there is a seamount that formed on the ridge and then was split in half by continued spreading. The sample from the seamount, collected on SO158, represents a major enriched geochemical anomaly. The morphology suggests that enriched plume-type material was injected into the ridge at this location over the past c. 100,000 yrs. Eight of 13 dredge hauls along this profile have been successful and recovered mainly pillow and sheet lava fragments. Furthermore a MUC station yielded 12 sediment cores.

In the night from August 21st to 22nd we started sampling the fourth profile at c. 89°10'W, extending 35 km north and 35 km south of the CNS axis into crust up to 500,000 years old. This site was selected, because a major depleted geochemical anomaly exists at a location where there is a left-lateral en echelon offset of the ridge axis. Fiveteen dredges yielded volcanic rocks along this profile and one dredge recovered hydrothermal deposits Additionally a MUC deployment was successfully carried at the southern part of the profile.

In the early afternoon of August 25th we started to sample one site to the south, one to the north and one to the east of a lava plateau, filling in the valley and ridge type morphology on the ridge at 88°20'W, to better understand this enriched geochemical anomaly along the eastern CNS. These 3 dredges recovered mainly pillow lavas (Fig. 4.10.). Finally, an on-axis seamount at 87°45´W was successfully sampled via dredging, whereas a TV-grab failed to return samples from this seamount but showed fascinating pictures from its crater region. On

August 26th the scientific sampling of SO208 Leg 2 was concluded with a final successful MUC deployment. The final two days of the SO208 Leg 2 have been spent on the transit to Guayaquil (Ecuador). The scientists spent the last days at sea packing and cleaning up the laboratories. On the morning of August 28th, SO208 ended at a berth of the port of Guayaquil where the single scientific container on board has been unloaded and a second has been packed on the pier. On Sunday August 29th, the scientists disembarked officially ending the cruise.

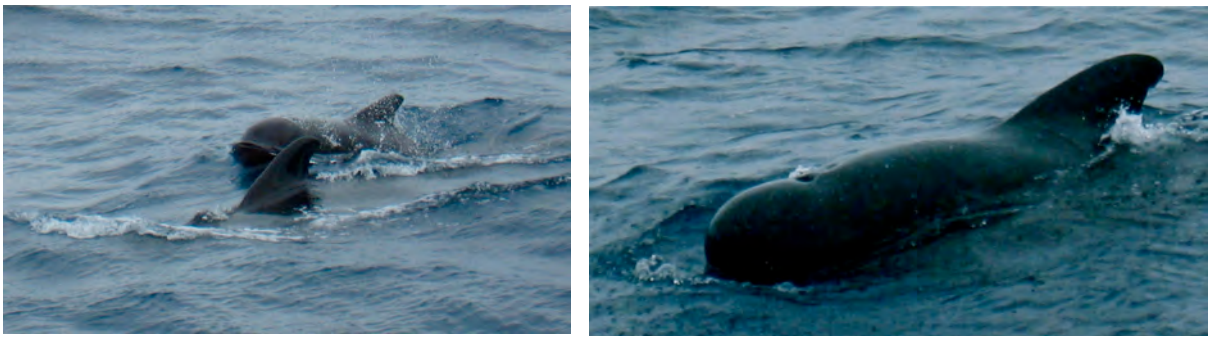

Fig. 4.11.: *Pilot whales swim alongside the SONNE.*

Complementing 3,352 nm of SIMRAD EM120 profiling, a total of 83 stations (76 dredges, 3 TV-grabs, and 4 MUCs) were carried out on Leg 2 in an average water depth of 1,470 m. Of these deployments, 59 recovered magmatic rocks, 3 volcaniclastics, 51 volcanic glass, and 6 Mn-Fe oxides, making SO208 Leg 2 very successful, despite the unfortunate circumstances associated with the Rockdrill 2 and having lost 10 working days in attempting to mobilize the Rockdrill.

5. BATHYMETRY AND ROCK SAMPLING

(F. Hauff, A. Herbrich, D. Maicher, K. Hoernle, R. Werner)

5.1. METHODS

5.1.1. Bathymetry

Data acquisition

Since June 2001 the R/V SONNE has been equipped with a SIMRAD EM120 multi-beam echo sounder system (Kongsberg) for continuous mapping of the seafloor. The SIMRAD EM120 system consists of several units. A transmitter/receiver transducer array is fixed in a mills cross below the keel of the vessel. A preamplifier unit contains the preamplifiers for the received signals. The transceiver unit contains the transmitter and receiver electronics and processors for beam-forming and control of all parameters with respect to gain, ping rate and transmit angles. The system has serial interfaces for vessel motion sensors, such as roll, pitch and heave, external clock and vessel position. The system also includes a Intel based (Windows XP) operator station. The operator station processes the collected data, applying all corrections, displays the results and logs the data to internal or external disks. The EM120 system has an interface to a sound speed sensor, which is installed near by the transducers.

The SIMRAD EM120 system uses a frequency of about 12 KHz with a whole angular coverage sector of up to 150° (75° per port-/starboard side). When one ping is sent, the transmitting signal is formed into 191 beams by the transducer unit through the hydrophones. The beam spacing can be defined in equidistant or equiangular modes or in a mix of both. The ping-rate depends on the water depth and the runtime of the signal through the water column. The variation of angular coverage sector and beam pointing angles was set automatically. This optimized the number of usable beams.

During a survey the transmitter fan is split into individual sectors with independent active steering according to vessel roll, pitch and yaw. This forces all soundings on a line perpendicular to the survey line and enables a continuous sampling with a complete coverage. Pitch and roll movements within ±10 degrees are automatically compensated by the software. Thus, the SIMRAD EM120 system can map the seafloor with a swath width about up to six times the water depth. The geometric resolution depends on the water depth and the used angular coverage sector and is less than 10 m at depths of 2,000 - 3,000 m.

The accuracy of the depth data obtained from the system is usually critically dependent upon weather conditions and the use of a correct sound speed profile. During SO208 sound profiles have been used recorded on SO207 in the working area, ensuring the use of the correct sound velocity on this cruise.

Data processing

The collected data were processed onboard with the EM120 coverage software. The post-processing was done on two other workstations by the accessory Neptune software. The Neptune software converted the raw data in 9 different files which contains information about position, status, depth, sound velocity and other parameters and are stored in a SIMRAD binary format.

The data cleaning procedure was accomplished by the Neptune software. The first step was to assign the correct navigational positions to the data without map projections. The second step was the depth corrections, for which a depth threshold was defined to eliminate erratic data points. In the third part of post-processing statistical corrections were applied. Therefore, a multitude of statistical functions are available in a so called BinStat window where the data are treated by calculating grid cells with an operator-chosen range in x and y direction. Each kind of treatment is stored as rule and has an undo option. For the calculation the three outermost beams (1 - 3 and 188 - 191) were not considered. Also a noise factor, filtering and a standard deviation were applied to the calculated grid. All this work was done by the system operators of RV SONNE. After the post-processing the data have been exported in an ASCII x,y,z file format with header information and it was transferred to another workstation where assembling, girding and contouring with the GMT software version 4.5.2 (Wessel and Smith 1995)' were done.

All maps presented in this report are created by A. Ehmer and W. Borchert (RF Forschungsschiffahrt GmbH, scientific and technical department [WTD]) onboard RV SONNE (except of Fig. 3.1., and Appendix.V).

5.1.2. Rock Sampling

Since planned Rockdrill deployment on Leg 2 had to be cancelled (see Chapter 4), rock sampling on SO208 Leg 1 and 2 was carried out using chain bag dredges and, at some stations using a TV guided grab. Chain bag dredges are similar to large buckets with a chain bag attached to their bottom and steel teeth at their openings, which are dragged along the ocean floor by the ship or the ship's winch. The TV-grab consists essentially of a set of steel jaws with a video camera in the center, which transmits pictures of the ocean floor. Suitable objects for sampling can be identified on a monitor and sampled from the ocean floor by closing the hydraulic jaws by remote control around the objects and then heave then on board.

Selection of dredge sites

Sites for detailed SIMRAD EM120 mapping and dredging were chosen on the basis of a number of existing datasets. These include:

1. Predicted bathymetry, derived from gravity data and ship depth soundings (Smith and Sandwell 1997), as well as GEBCO data sets (e.g. The GEBCO_08 Grid, version 20091120, http://www.gebco.net).
2. Swath bathymetry data, maps, and geochemical data yielded on SO158 MEGAPRINT (e.g. Werner 2002, Christie et al. 2005, Kokfelt et al. 2005, unpubl. data by Hoernle, Hauff et al.)
3. Swath bathymetry data recorded on various U.S. American cruises, kindly provided by Scott White.
4. Swath bathymetry data recorded on SO207, kindly provided by Heinrich Villinger.
5. Swath bathymery data recorded off Costa Rica and Nicaragua on various cruises, compiled and kindly provided by Wilhelm Weinrebe.
6. Published monographs, maps and papers (see, for example, chapter 3.).

Shipboard procedure

Once onboard, a selection of the rocks were cleaned and cut using a rock saw. They were then examined with a hand lens and microscope, and grouped according to their lithologies and degree of submarine weathering. The immediate aim was to determine whether material suitable for geochemistry and radiometric age dating had been recovered. Suitable samples have an unweathered and unaltered groundmass, empty vesicles, glassy rims (ideally), and any phenocrysts that are fresh. If suitable samples were present, the ship moved to the next station. If they were not, then the importance of obtaining samples from the station was weighted against the available time. However, a second dredge nearby was necessary only in a very few cases.

Fresh blocks of representative samples were then cut for thin section and microprobe preparation, geochemistry and further processes to remove manganese and alteration products and/or to extract glass (if applicable). Each of these sub-samples, together with any remaining bulk sample, was described, labeled, and finally sealed in either plastic bags or bubble wrap for transportation to IFM-GEOMAR or cooperating institutions.

Shore based analyses

Magmatic rocks sampled by the R/V SONNE from the ocean floor will be analyzed using a variety of different geochemical methods. The ages of whole rocks and minerals will be determined by $^{40}Ar/^{39}Ar$ laser dating. Major element geochemistry by X-ray fluorescence (XRF) and electron microprobe (EMP) will constrain magma chamber processes within the crust, and also yield information on the average depth of melting, temperature and source composition to a first approximation. Phenocryst assemblages and compositions will be used to quantify magma evolution, e.g. differentiation, accumulation and wall rock assimilation. Petrologic studies of the volcanic rocks will also help to constrain the conditions under which the melts formed (e.g., melting depths and temperatures). Further analytical effort will concentrate on methods that constrain deep seated mantle processes. For example, trace element data by inductively coupled plasma mass spectrometry (ICP-MS) will help to define the degree of

mantle melting and help to characterize the chemical composition of the source. Long-lived radiogenic isotopic ratios by Thermal Ionization Mass Spectrometry (TIMS) and Multi-collector ICP-MS such as $^{87}Sr/^{86}Sr$, $^{143}Nd/^{144}Nd$, $^{206}Pb/^{204}Pb$, $^{207}Pb/^{204}Pb$, $^{208}Pb/^{204}Pb$, and $^{187}Hf/^{188}Hf$ are independent of the melting process and reflect the long term evolution of a source region and thus serve as tracers to identify mantle and recycled crust sources. Crustal ages up to 350 ka will be inferred from U-series disequilibriums. Additionally, morphological studies and volcanological analyses of the dredged rocks will be used to constrain eruption processes, eruption environment and evolution of the volcanoes. Through integration of the various geochemical parameters, the morphological and volcanological data, and the age data the origin and evolution of the sampled structures can be reconstructed.

Non-magmatic rocks and Mn-Fe oxides yielded by dredging will be transferred to co-operating specialists for further shore based analyses.

5.2. SAMPLING REPORT AND PRELIMINARY RESULTS

This section gives background information and short summaries of the features sampled and/or mapped on SO208 and on the rocks obtained by dredging and TV-grab.

Only a few of the studied seamounts have been named by earlier surveys (e.g., Guardian Seamount). SO208 assigned informal working names (marked by quotation marks) to some un-named seamounts and ridges. Refer to Appendix I and II for exact latitude, longitude, and depth of dredge sites and more detailed rock descriptions. Appendix V shows an overview map with all SO208 sampling sites. Distances between seamounts are given between the seamount tops and are approximate only; dimensions and heights are preliminary and are included only to give a rough idea of dimensions of morphological features.

5.2.1. SO208 Leg 1: Seamounts off Costa Rica and Nicaragua (DR 1 – 40, TVG 8+22)

A large number of seamounts located on the EPR part of the Cocos Plate were the target of SO208 Leg1 to carry out mapping and hardrock sampling. The frequence of semounts in this area is unusually high for ocean crust created away from hotspots and which thereafter did not come close or across classical intraplate hotspot activity. The principle questions to adress are (1) temporal relations bewteen ocean crust formation (from existing paleomagnetic data) and off-axis seamount volcanism (by Ar-Ar-geochronology), (2) to decipher whether these seamounts formed by an unusual off-axis melting anomaly close to the ridge (fed by small scale upper mantle heterogeneities) or if they are far field effects of the Galápagos Plume and (3) to characterize the material input into the Central American Subduction Zone. On predicted bathymetric maps a large number of these seamounts appear to strike in a SW-NE direction (more or less perpendicular to the EPR spreading direction) suggesting a series of “stationary” off-axis melting anomalies; a hypothesis that can be supported if an age progression along these seamount chains is present (e.g. becoming younger towards the SW). On the other hand the alignment of the seamounts could also reflect radial outflow of Galápagos Plume material in the East Pacific upper mantle that eventually melts due to deep lithospheric fracturing near the junction of ocean crust formed at the EPR and CNS.

SO208-DR 1 „Pancake“ Seamount

The first dredge location is a circular shaped seamount with a base diameter of 9 km that elevates c. 250 m above the surrounding seafloor (Fig. 5.1.). The working name of the structure is „Pancake“. The dredge was deployed along its northern slope from 3,224 to 2,992 m below sea level (b.s.l.) and recovered a few aphyric, non-vesicular pillow basalt fragments and minor volcaniclastics. A total of 8 representative samples were taken. The groundmass of the pillow fragments is slightly to medium altered (light grey) and contains <2% Fsp and <1% Ol (some fresh) microphenocrysts. Mn-encrustations are up to 1 mm and circular alteration halos in cut pieces indicate that the material originates from a talus deposit.

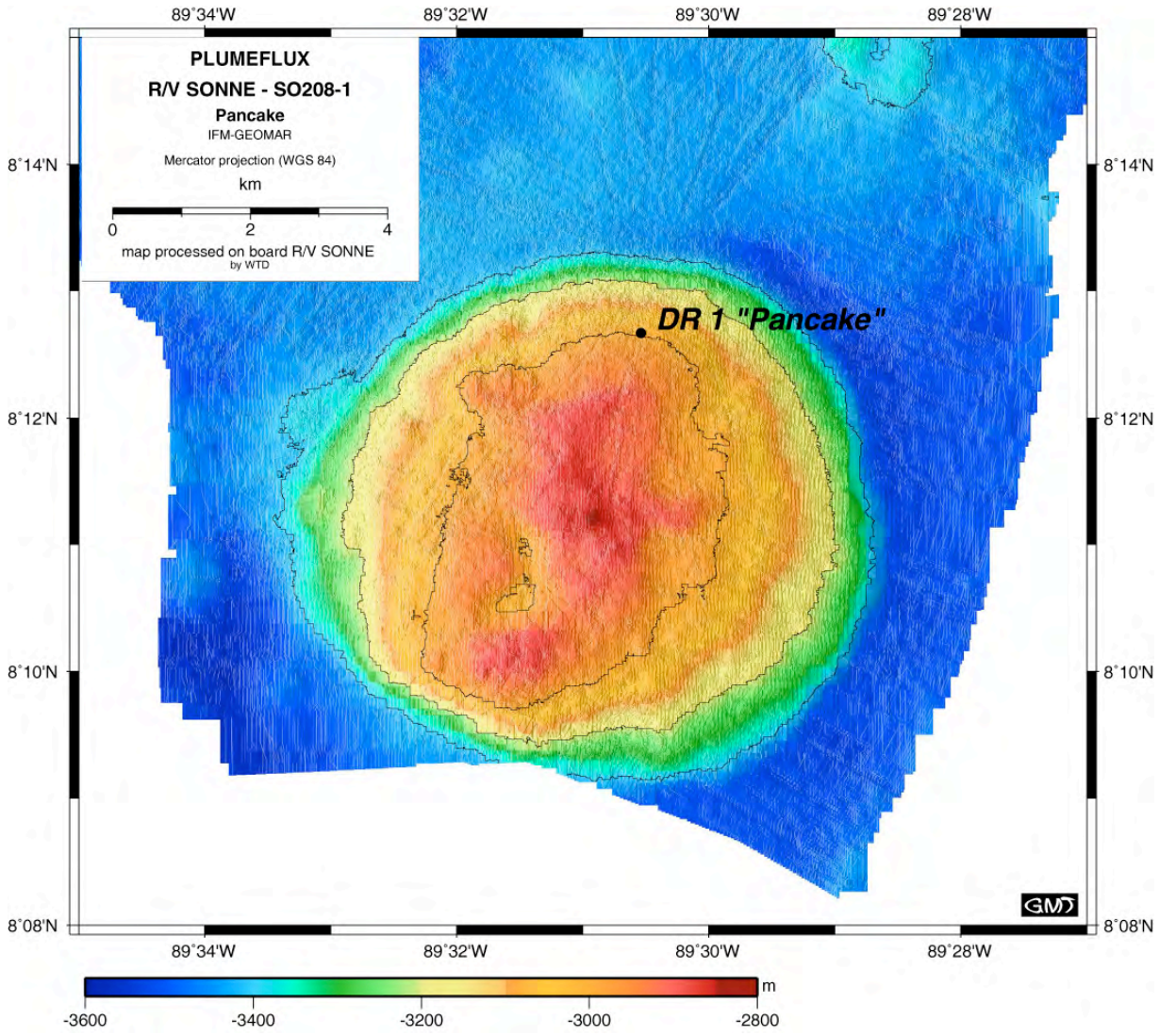

Fig. 5.1.: *Dredge site DR 1 at "Pancake Seamount" (contour interval = 200 m).*

SO208-DR 2 „Half-Moon" Seamount

This seamount has a base diameter of ca 10 km and rises from 3,600 to c. 2,300 m b.s.l. along its eastern flank (Fig. 5.2.). The asymmetric shape with a steep eastern flank and a gentle western slope associated with a lunate shaped top region in the east leads to the working name "Half-Moon". The northeastern flank was sampled between 2,824 to 2,350 m b.s.l. with the dredge and recovered massive lava and pillow fragments along with volcaniclastics and Mn-nodules. The massive lava (DR 2-1) has a fresh microcrystalline groundmass with ca 10% fresh Fsp and 4 % Pyx sub-mm to mm sized phenocrysts. The pillow basalts are slightly to medium altered and contain 20 - 50% sub-mm sized Fsp phenocrysts (fresh to altered), 10 - 30% Pyx sub-mm sized phenocrysts and in places <1% Ol. The lavas are quite dense and possess 1 - 4% vesicles that are either filled or lined with secondary material. The volcaniclastics mostly consits of pillow fragments with altered glass rims that are cemented by calcareous ooze.

SO208-DR 5 and 6 „Egg" Seamount

This seamount lies in the center of an oval shaped volcanic field extending c. 14 km (E-W) by 8 km (N-S) that rises from 3,400 to 2,800 m b.s.l. (Fig. 5.3.). DR 5 conducted at a cone at eastern base of "Egg" Seamount returned empty. From its NE flank medium to strongly altered, aphyric pillow fragments with a fine grained groundmass were obtained by dredging. Fresh glass occurs in the chilled margins of some samples.

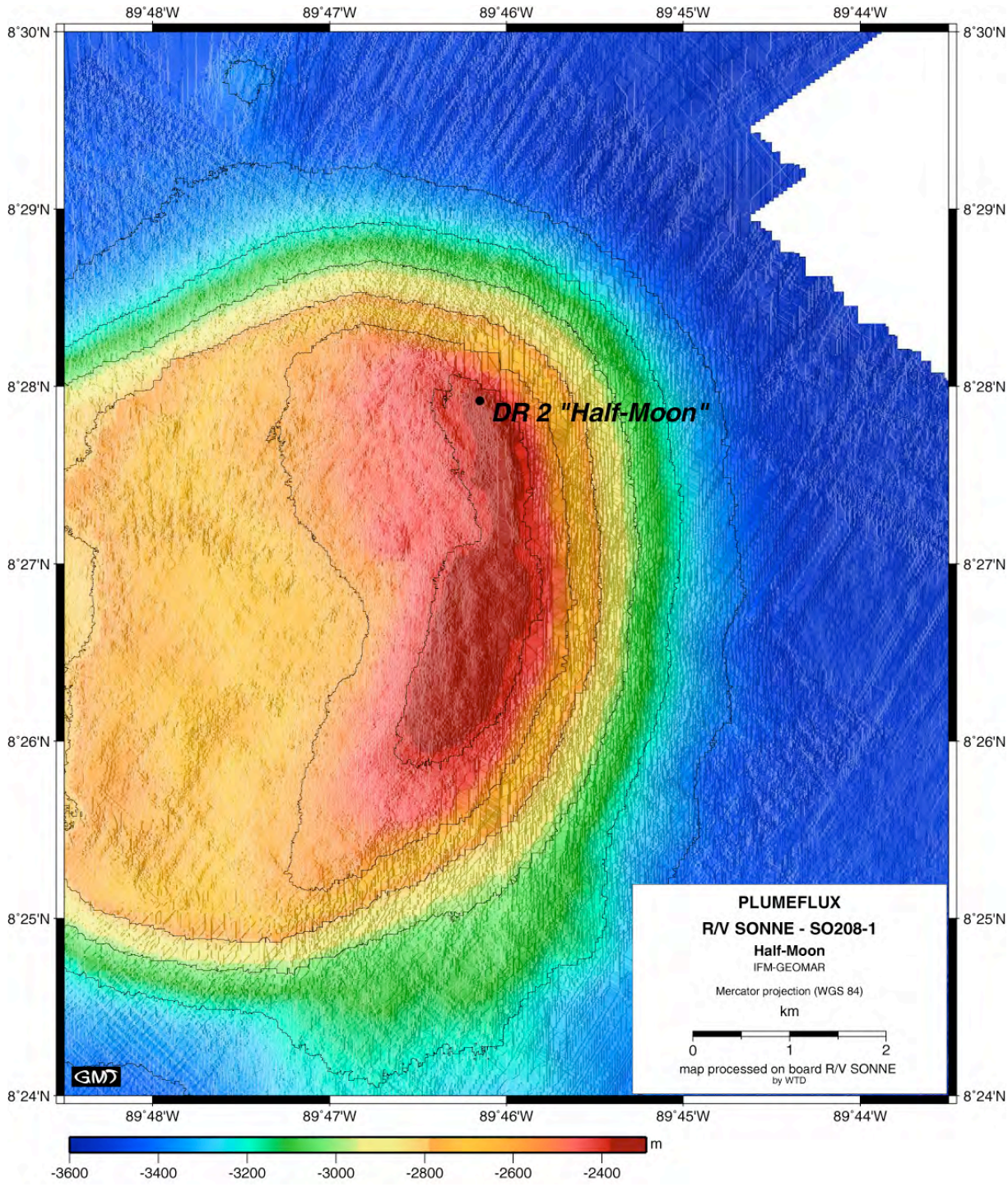

Fig. 5.2.: *Dredge site DR 2 at "Half-Moon Seamount" (contour interval = 200 m).*

SO208-DR 7 „Boxer" Seamount

This irregular shaped seamount field consists of 3 cones from which the largest (c. 4 x 3.5 km) has been sampled along the base of its eastern slope at 3,398 m b.s.l. to the top in 2,973 m b.s.l. (Fig. 5.4.). Only a few, strongly altered pillow basalt fragments were recovered. The aphyric groundmass contains 0 –2 0% plagioclase (fresh to altered) and 3 - 10% Pyx microphenocrysts.

SO208-TVG 8 and DR 9 „Horseshoe" Seamount

Due to a technical problem this seamount has been mapped only partially (Fig. 5.5.). A TV-grab deployed from the NE crater rim into the crater recovered several manganese knolls from the crater floor. Similarly DR 9 along the SW crater rim also obtained manganese knolls but these contained vesicular (up to 30%), aphyric basaltic cores with highly altered groundmass. In places subordinate fresh glass occurs.

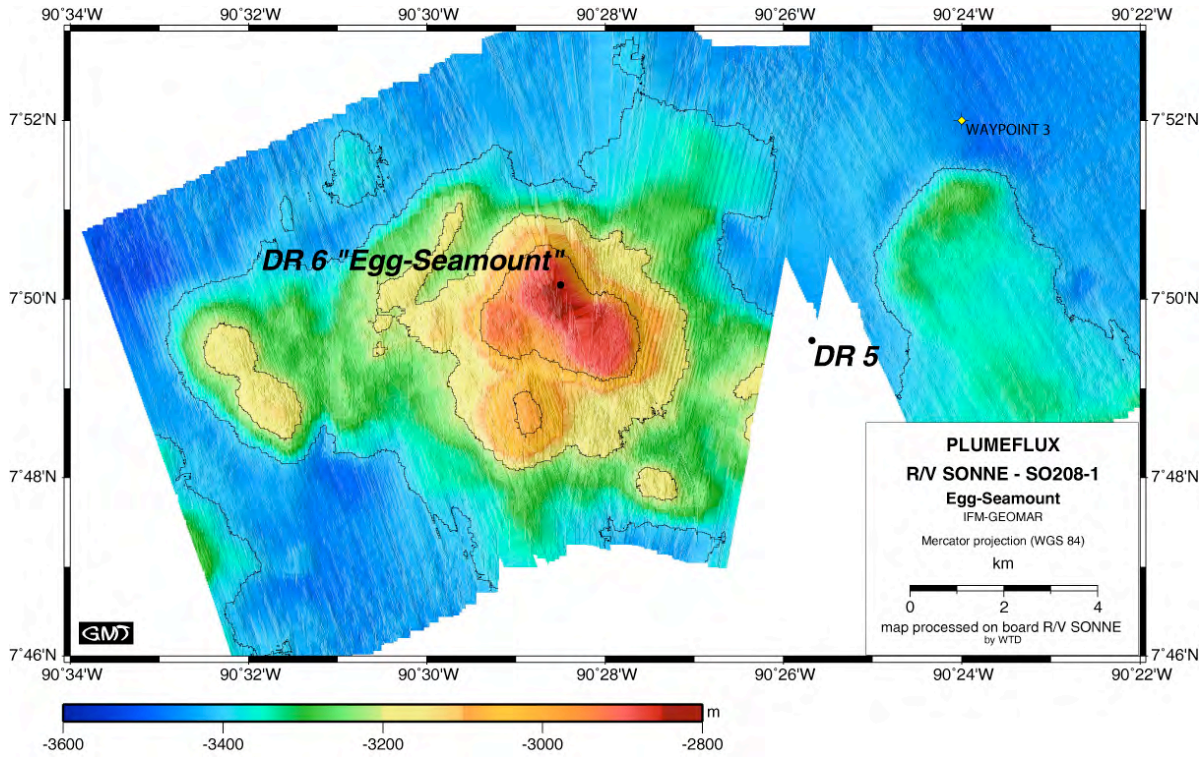

Fig. 5.3.: *Dredge sites DR 5 and 6 at "Egg Seamount" (contour interval = 200 m).*

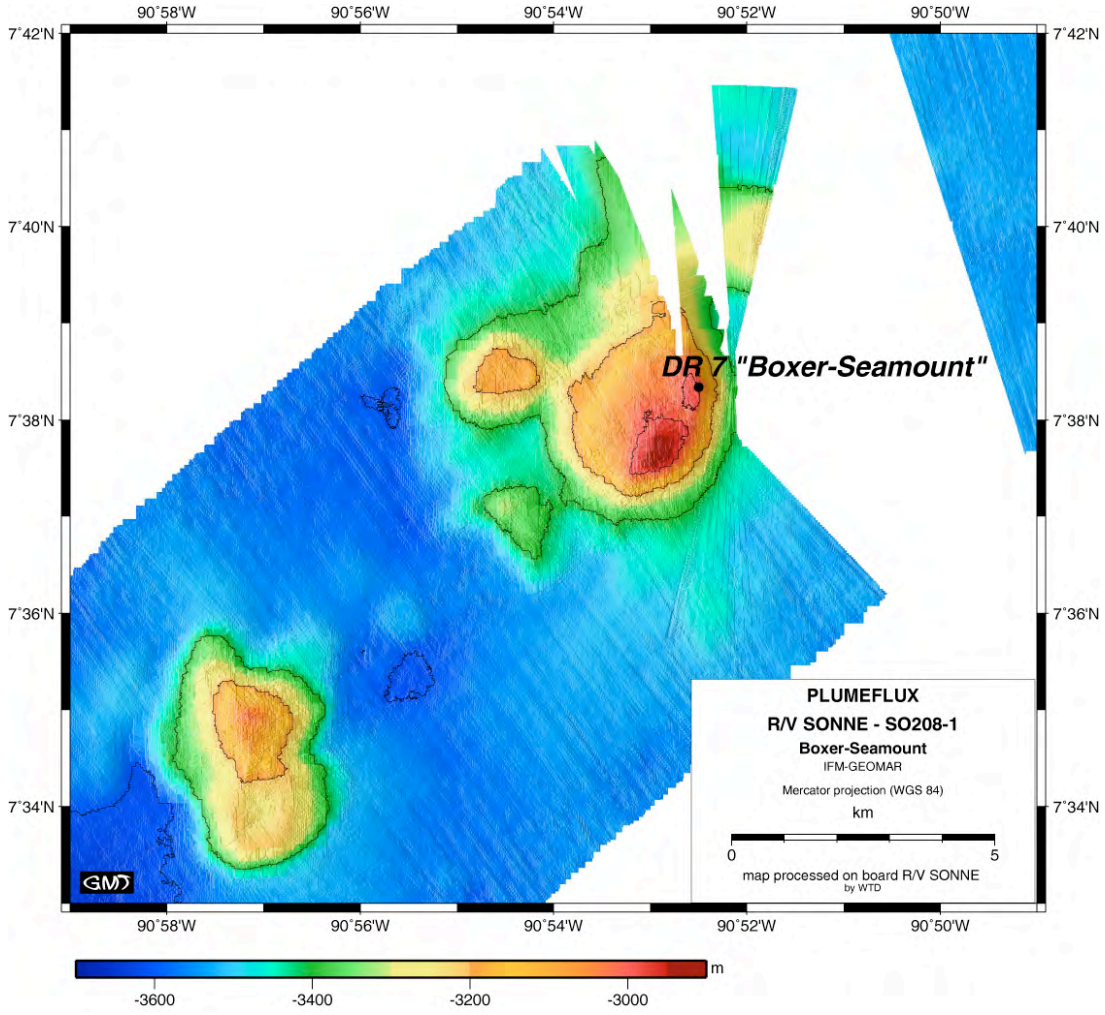

Fig. 5.4.: *Dredge sites DR 7 at "Boxer Seamount" (contour interval = 200 m).*

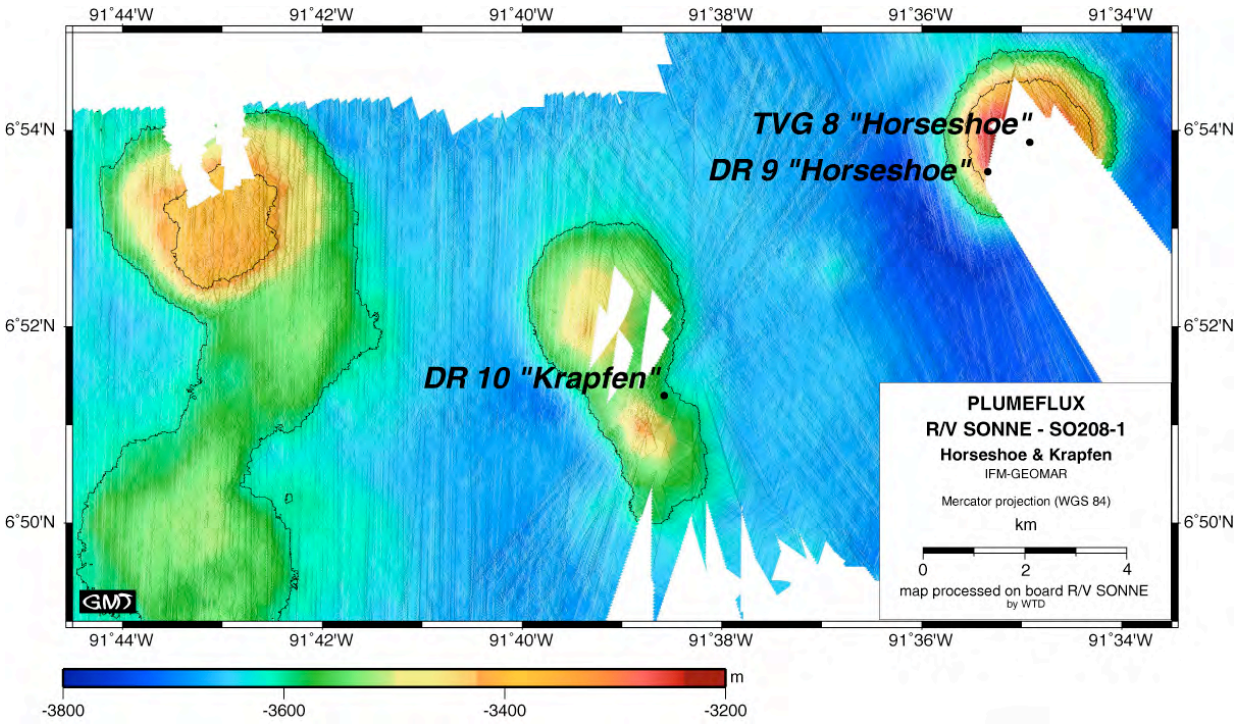

Fig. 5.5.: *Dredge sites TVG 8, DR 9 and 10 at "Horseshoe" and "Krapfen Seamount" (contour interval = 200 m).*

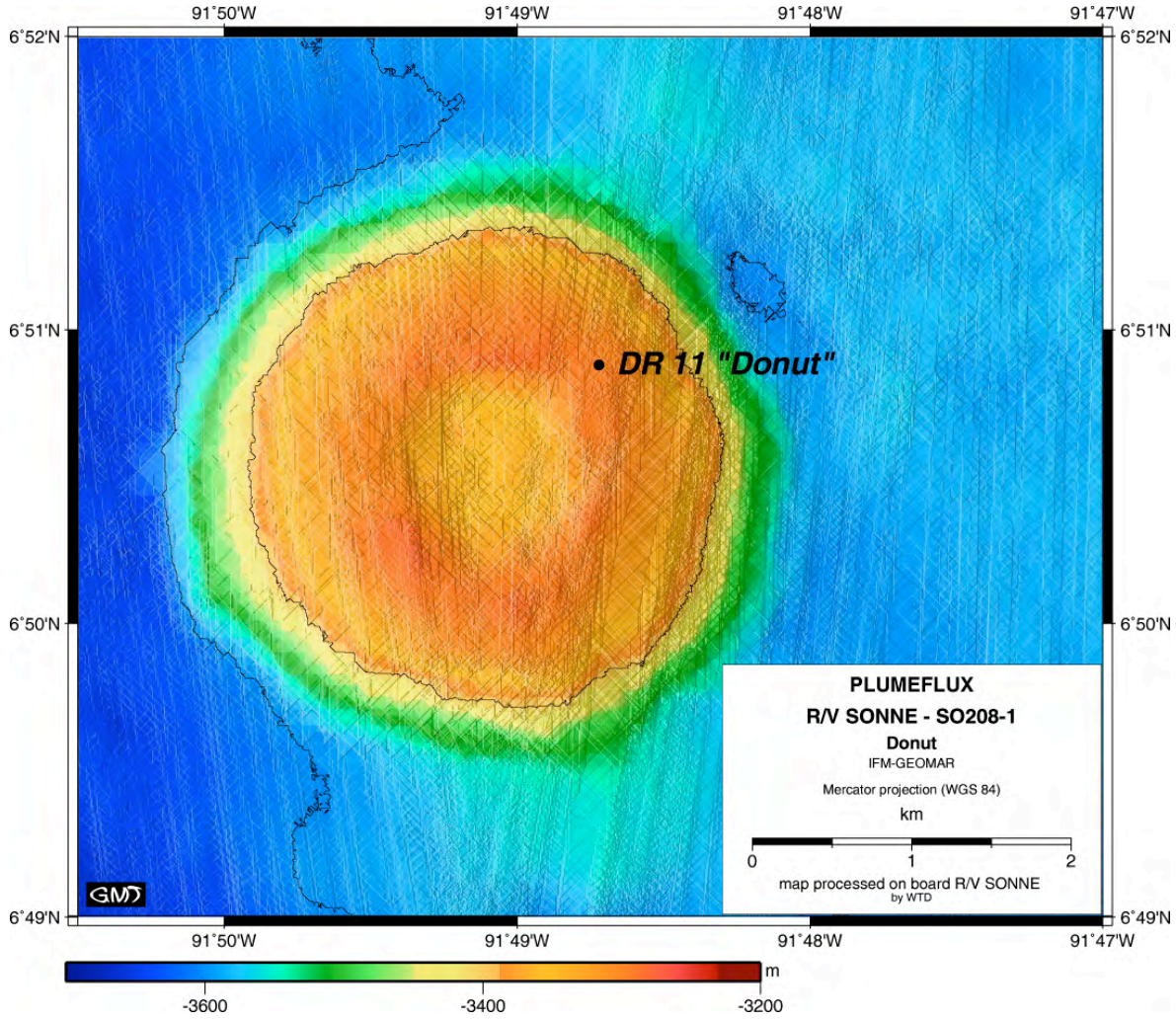

Fig. 5.6.: *Dredge site DR 11at "Donut Seamount" (contour interval = 200 m).*

SO208-DR 10 „Krapfen“ Seamount

A single, unsuccessful dredging attempt was carried in the southern half of this N-S elongated seamount (Fig. 5.5.) along its eastern flank (3,570 m b.s.l.).

SO208-DR 11 „Donut“ Seamount

This perfectly circular shaped seamount (Fig. 5.6.) has a diameter of c. 9 km at its base and elevates only 200 – 250 m above the surrounding seafloor (3,600 m b.s.l.). A small crater in the center of the structure has a diameter of c. 1 km and is only 50 m deep leading to the working name “Donut”. The dredge track was carried out along the NE flank (3,520 – 3,290 m b.s.l.) and recovered Mn-crusts and knolls. Some contain essentially aphyric, non-vesicular basaltic cores with rare (1 - 3%) mm-sized Fsp and Px phenocrysts. Fresh, 5 mm thick glass rims are also present.

SO208-DR 12 „Embryo“ Seamount

This seamount rises c. 600 m above the seafloor and has a base diameter of 6 km (Fig. 5.7.). A dredge along the NE flank (2,499 - 2,419 m b.s.l.) returned empty.

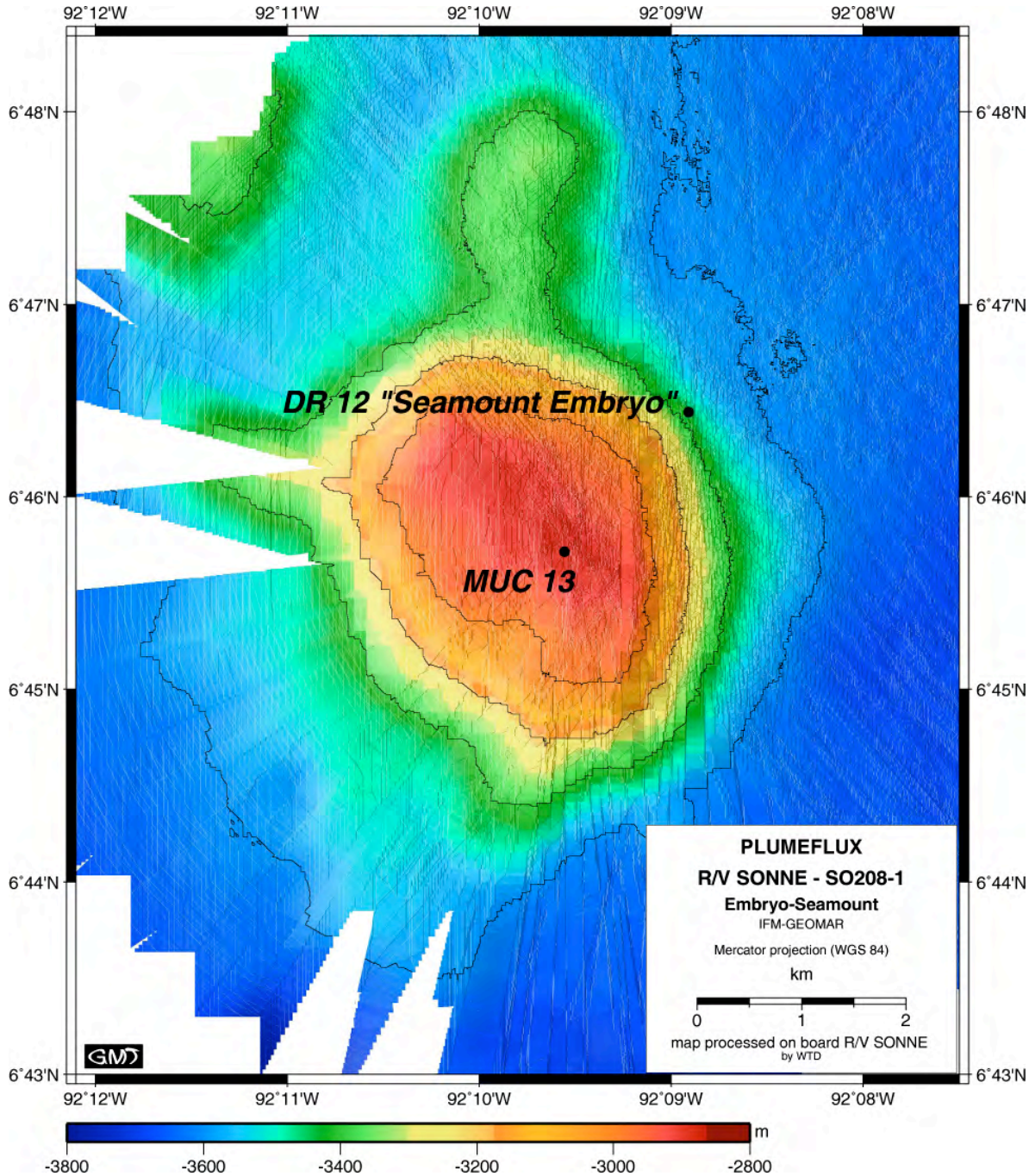

Fig. 5.7.: *Dredge site DR 12 and MUC 13 at “Embryo Seamount” (contour interval = 200 m).*

SO208-DR 15 „Spiegelei“ Seamount

This seamount is again circular shaped for most of its portion but has a characteristic NW striking ridge-like extension (Fig. 5.8). A dredge haul at the northern flank between 3,104 and 2,783 m b.s.l. recovered glassy pillow basalts. Fresh glass is abundant in samples DR 15-1 to -5. The groundmass ranges from fresh to medium altered with a highly variable microphenocryst content of Fsp (15 - 40%), Pyx (1 - 35%) and Ol (2 - 3%). The vesicularity ranges from 1 - 30% and vesicles are often filled with secondary material.

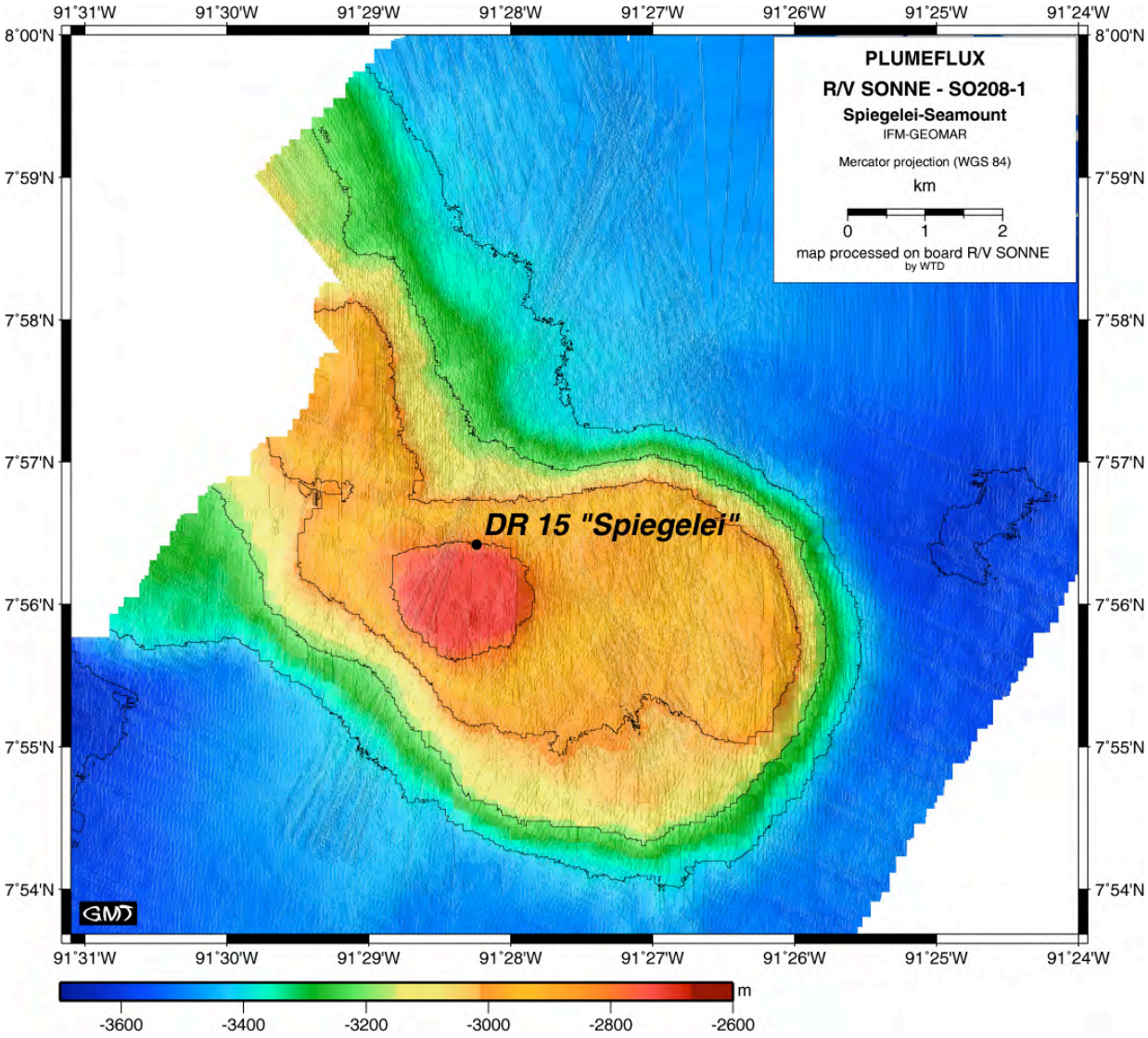

Fig. 5.8.: *Dredge site DR 15 at “Spiegelei Seamount” (contour interval = 200 m).*

SO208-DR 16 „Looser“ Seamount

The dredge deployed along the NE flank (2,591 – 2,777 m b.s.l.) of this circular shaped seamount returned empty.

SO208-DR 17 „Eye“ Seamount

“Eye” seamount is another circular seamount with the highest elevation along its western half. The top region is characterized by several cones in the east. The dredge track has been carried out along the northern slope where a small depression cuts into the flank. A full dredge of pillow basalts, pillow fragments, glassy sheet lava, volcaniclastics and hyaloclastite was recovered. Two lava units are distinguished. The first unit is aphyric, almost non-vesicular pillow basalt with 1 - 2 mm thick fresh glass rims. The second unit mainly occurs as pillow breccia and is characterized by a porphyric texture with 1 - 10% sub-mm sized feldspar phenocrysts. Fresh glass rims also occur in this unit. Glassy sheet lava is sampled from DR 17-19 through -31 and contains fresh glass despite omnipresent signs of alteration.

SO208-DR 18 „Knob“ Seamount

A dredge haul carried out along the NE flank (3,227 – 2,850 m b.s.l.) only returned a few Mn-crusts.

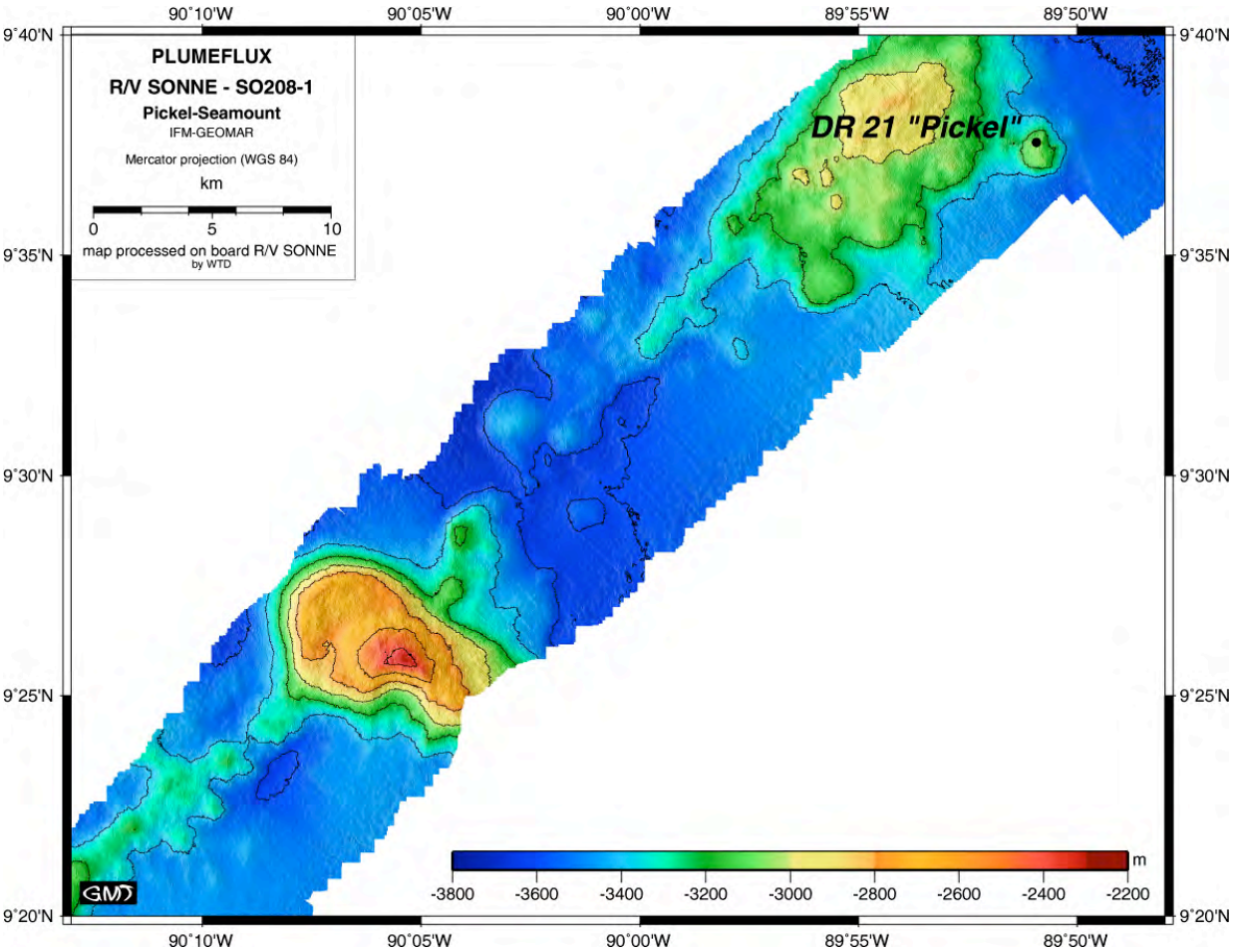

Fig. 5.9.: *Dredge site DR 21 at “Pickel Seamount” (contour interval = 200 m).*

SO208-DR 21 „Pickel“ Seamount

A small (1km) cone to the east of a larger NE-SW striking ridge (Fig. 5.9.) has been sampled along its NE flank (3,329 - 3,029 m b.s.l.) with a full dredge that contained pillows and pillow fragments. Overall the pillow lithologies are quite homogeneous and mostly aphyric with minor occurrences of mm to sub-mm sized altered Ol (1%), Fsp (1-2%) and < 1% Pyx. The groundmass is in most cases medium to strongly altered with occasional grey, fresh cores. Glassy margins are present in the majority of samples and the glass often appears to be of good quality.

SO208-TVG 22 unnamed seamount

TVG 22 was deployed in the top region of a an irregular shaped seamount and delivered - besides sediment - a few aphyric to slightly Fsp-Pyx-phyric and highly altered pillow fragments (Fig. 5.10). Still some of the chilled margins contains fresh glass.

SO208-DR 23 through DR 25 „Bend Fault Seamount“

This circular shaped seamount has a base diameter of c. 13 km and is located in close proximity to the Central American trench (Fig. 5.11.). Here the downgoing Cocos Plate starts to bend and bulge, leading to a series of trench parallel faults. At least two of these faults cut through this seamount. Due to the sharp bends and deflections of the depth contours these fault are considered geologically young or even active. DR 23 (1,838 - 1,735 m b.s.l.) was carried out along such a bend fault just 2 km NW of the seamount top in an attempt to possibly sample deeper (stratigraphycally older?) sections. A 1/3 full dredge with fairly fresh Fsp-Pyx-phyric pillow basalt was recovered (DR 23-1 to -4) and more altered pillow fragments but with partially fresh glass rims from DR 23-5 to -9. The next dredge haul DR 24 (c. 1,700 m b.s.l.)

located just NE of the top region recovered a full dredge of often fairly fresh pillows and pillow fragments. They are characterized by a massive, dense groundmass that contain minor (<1%) sub-mm sized Ol and Pyx microphenocrysts and sometimes also Plag. From DR 24-9 to -12 onwards altered pillow fragments with fresh glass rims were sampled. A few volcaniclastics contain palagonized glass shards cemented in calcite. Finally a calcareous sediment and a Mn-nodule were also recovered. DR 25 (2,574 - 2,220 m b.s.l.) targeted the NE base of the seamount and recovered fresh pillow lava with a microcrystalline Fsp-Pyx groundmass that in places had fresh glassy margins preserved.

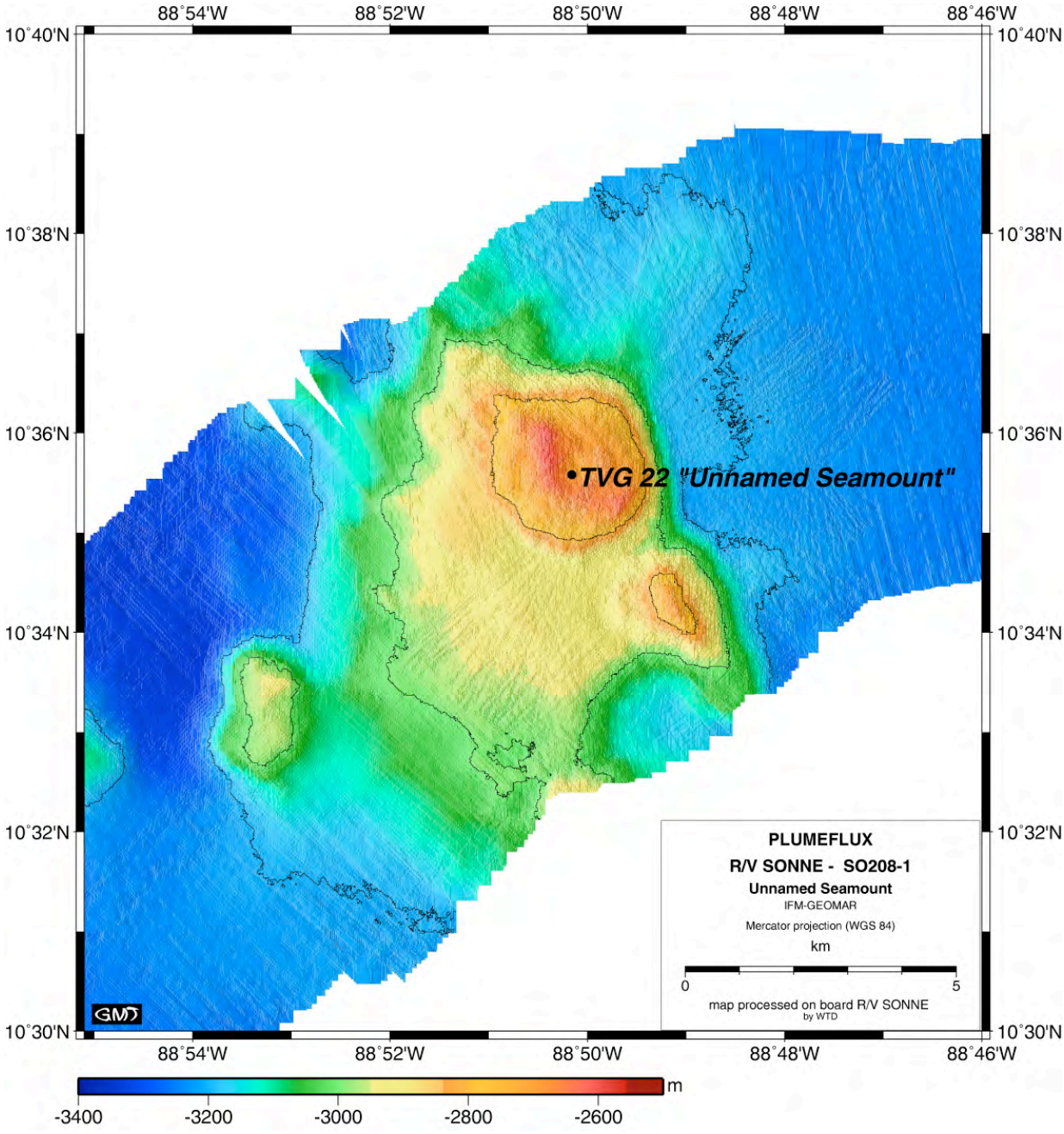

Fig. 5.10.: *TVG 22 in the top area of an unnamed seamount (contour interval = 200 m).*

SO208-DR 26 „Little Bend Fault Seamount“

This seamount is located 9 nm SE of “Bend Fault Seamount” but is much smaller in size (5 km base diameter) and less obviously affected by bend-fault activity (Fig. 5.11.). The dredge track aimed for the NW base (2,995 - 2,680 m b.s.l.) and recovered a few rocks which appeared to be fragments of a single pillow. This basalt is essentially aphyric and dense with abundant fresh parts. Fresh glass has been found in a few samples but in most cases is replaced by palagonite.

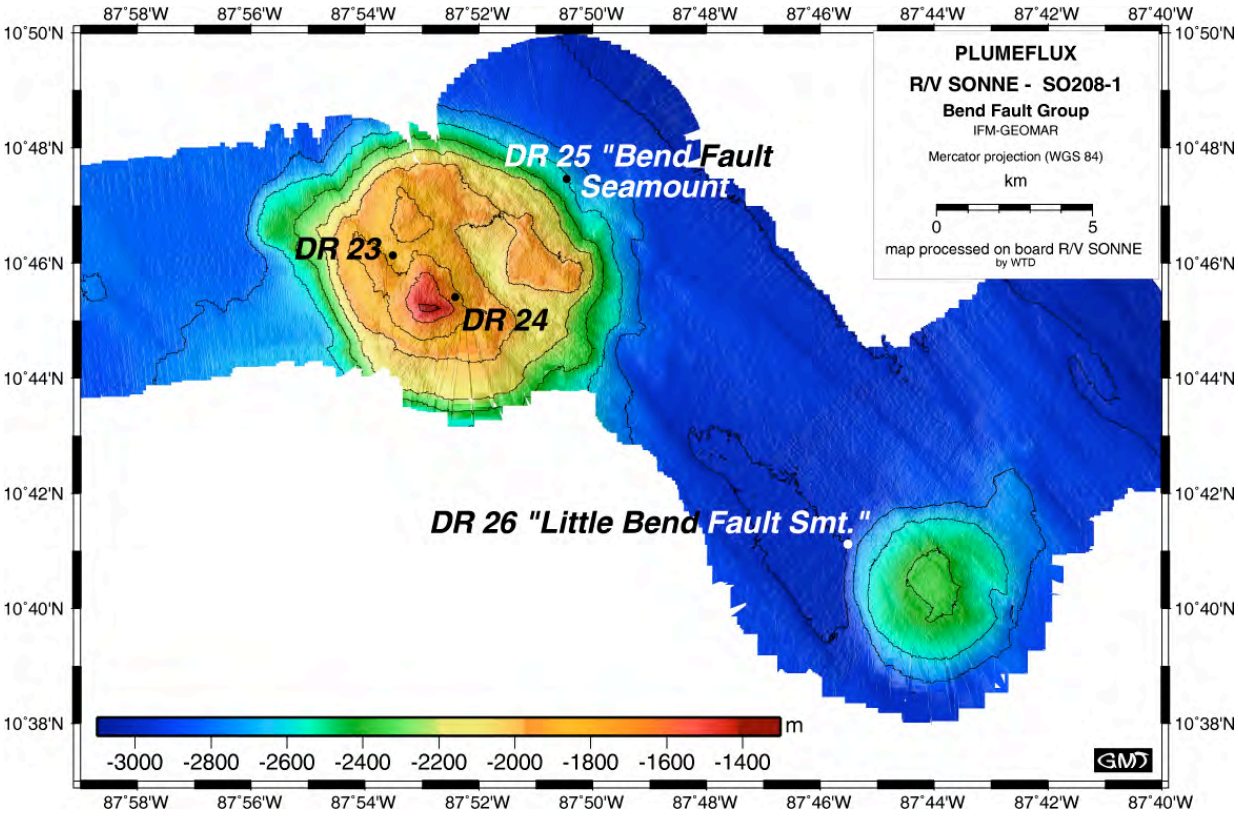

Fig. 5.11.: *Dredge sites DR 23 – 25 at "Bend Fault Seamount" and DR 26 at "Little Bend Fault Seamount" (contour interval = 200 m).*

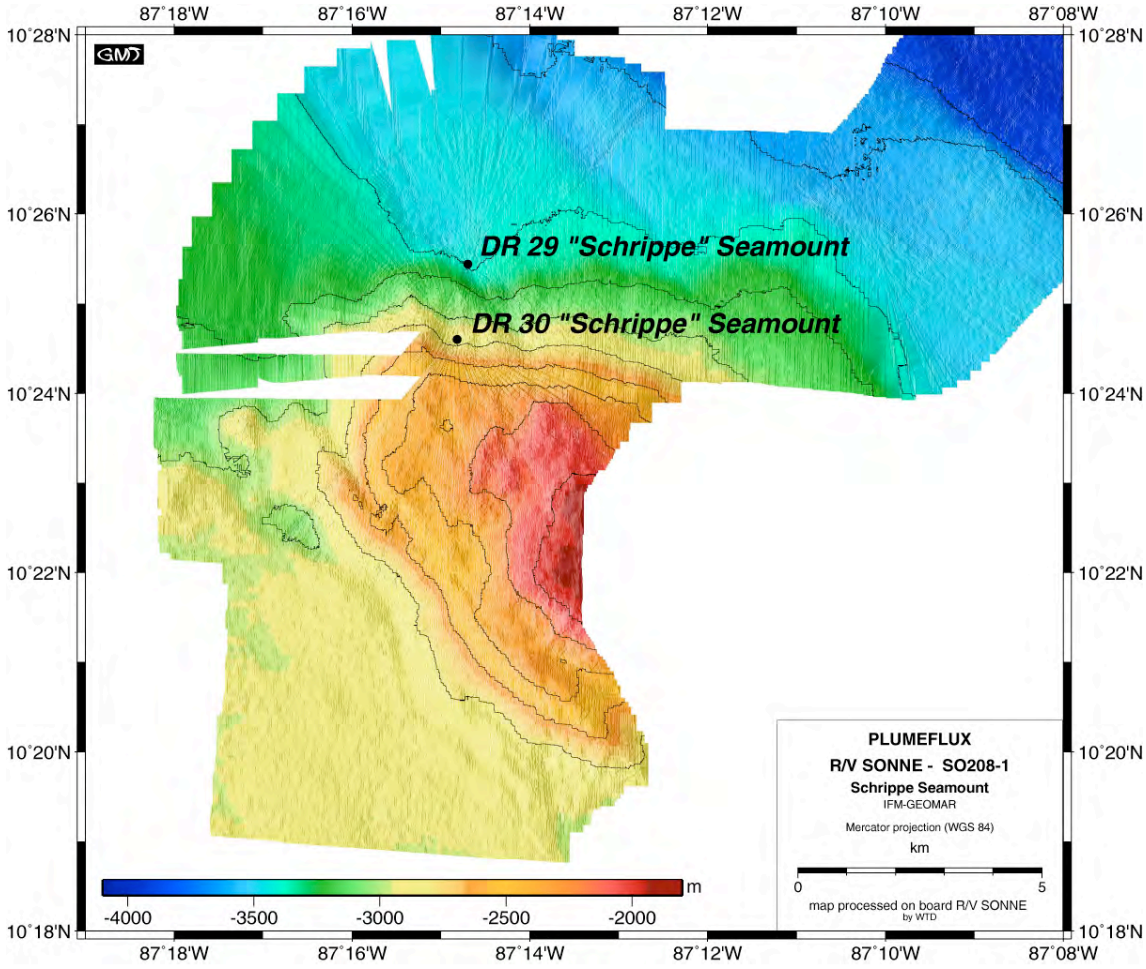

Fig. 5.12.: *Dredge sites DR 29 and 30 at "Schrippe Seamount" (contour interval = 200 m).*

SO208-DR 29 and DR 30 „Schrippe“ Seamount

This seamount also belongs to the “bend-fault type seamounts” and is located approximately 60 km SE of the previous locations (Fig. 5.12.). DR 29 (3,400 - 3,109 m b.s.l.), deployed at the NW base of this NW-SE elongated (15 x 10 km) structure, returned empty. The second attempt (DR 30) further upslope (2,848 - 2,400 m b.s.l.) in the same area was half full with probably homogeneous pillow lava. The basalt is quite fresh (DR 30-1), massive and aphyric with very minor (<1%) sub-mm sized Pyx microphenocrysts. The chilled margins seem to contain fresh glass.

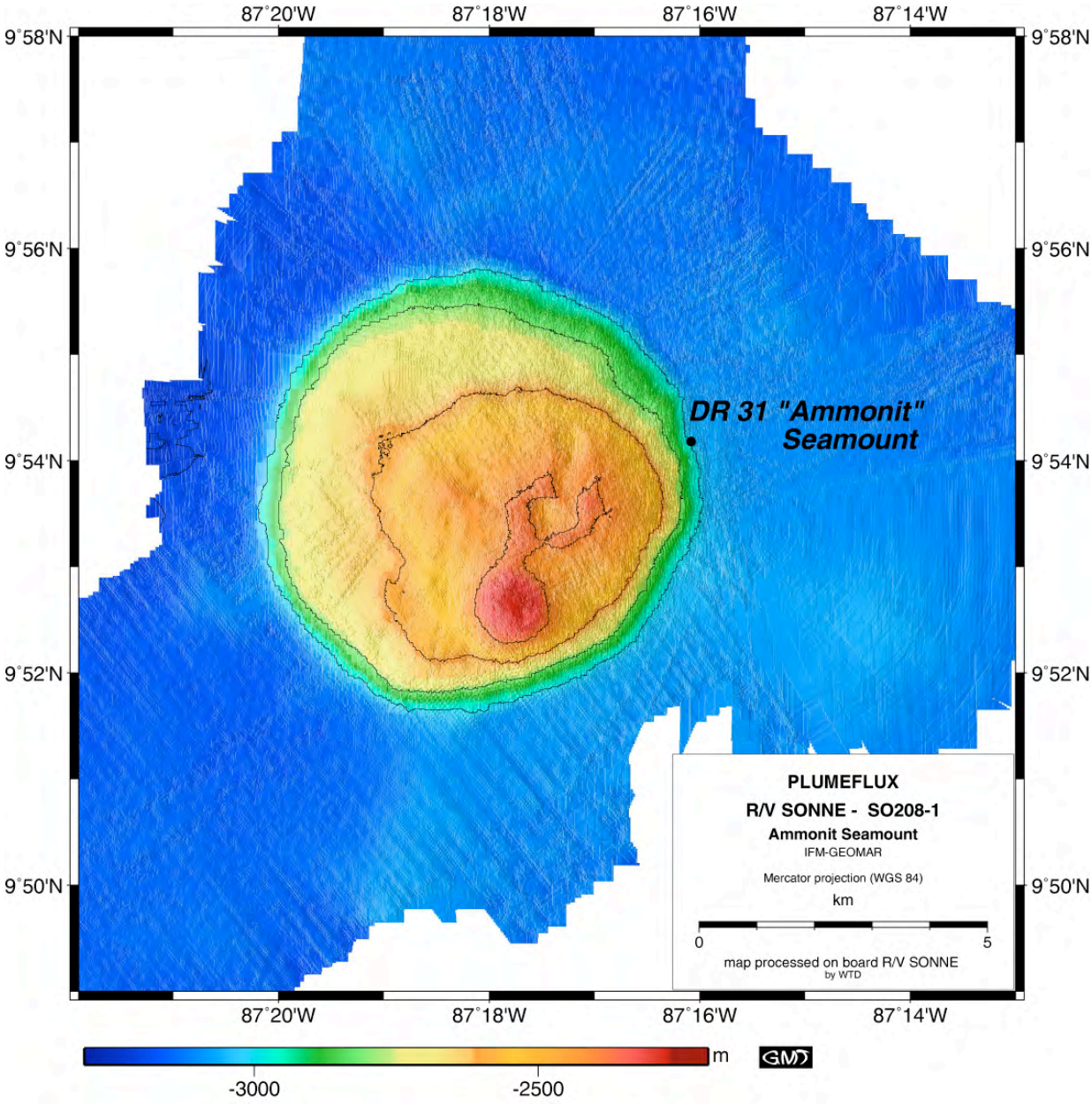

Fig. 5.13.: *Dredge site DR 31 at “Ammonit Seamount” (contour interval = 200 m).*

SO208-DR 31 „Ammonit“ Seamount

This seamount lies distant to the Central American trench and belongs to the group of circular shaped “seamounds” that seem to have a typical base diameter of c. 9 km and rise only 600 m above the surrounding seafloor (Fig. 5.13.). The dredge was carried out along the NE flank (3,038 – 2,584 m b.s.l.) and gave fresh to variably altered, aphyric and dense pillow basalt with glass occurring on some samples.

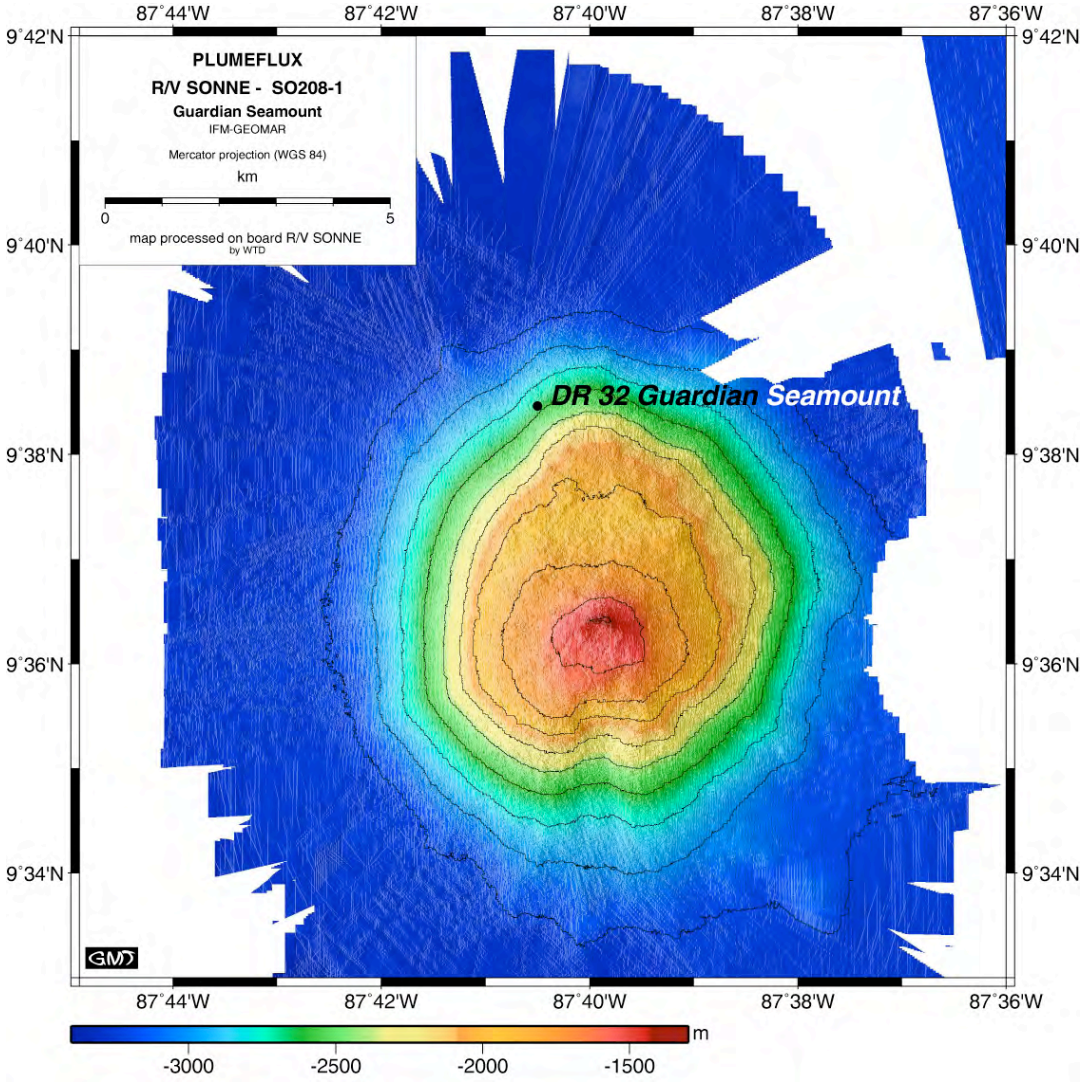

Fig. 5.14.: *Dredge site DR 32 at Guardian Seamount (contour interval = 200 m).*

SO208-DR 32 Guardian Seamount

Another circular shaped seamount with a 9-10 km base diameter with a characteristic cone in the southern part (Fig. 5.14.). With ca 1,500 m elevation above seafloor the relief is more pronounced than observed at the other seamounts mapped thus far. Notably this region of the Cocos Plate is referred to as Guardian Bank (Fig. 4.1.) on navigation maps with shallows of a few tens m b.s.l. and is thus categorically circumnavigated by merchant shipping. Multibeam mapping along our cruise track in this area, however did not provide any evidence for such shallow submarine structures. Dredging targeted the NW corner at about midslope (2,640 – 2,095 m b.s.l.) and provided monolithological pillows and pillow fragments. They are essentially aphyric with sometimes minor occurrences of sub-mm sized Pyx and Fsp Vesicularity ranges form 10 - 50% and vesicles are often filled or lined with secondary material. Overall the groundmass is classified to be medium to highly altered. Chilled margins are abundant and occasionally contain fresh glass. A volcaniclastic breccia (DR 32-1) seems to contain higher amounts of fresh glass.

SO208-DR 33 „Kringel“ Seamount

This seamount has a characteristic horseshoe shaped top region (Fig. 5.15.) that most likely resulted from a collapse of the southern edge or crater rim. Again the base diameter is c. 9 – 10 km and the highest elevation difference (1,200 m) occurs along the northern slopes. Here dredging was carried out from 2,715 to 2,576 m b.s.l. and recovered a few Mn-encrusted pillow basalt fragments. The basalts are aphyric and dense (<1% vesicles) and range from slightly to highly altered. Glass has only been found in single chilled margin to which an intrapillow hyaloclastite is attached (DR 33-9-VC).

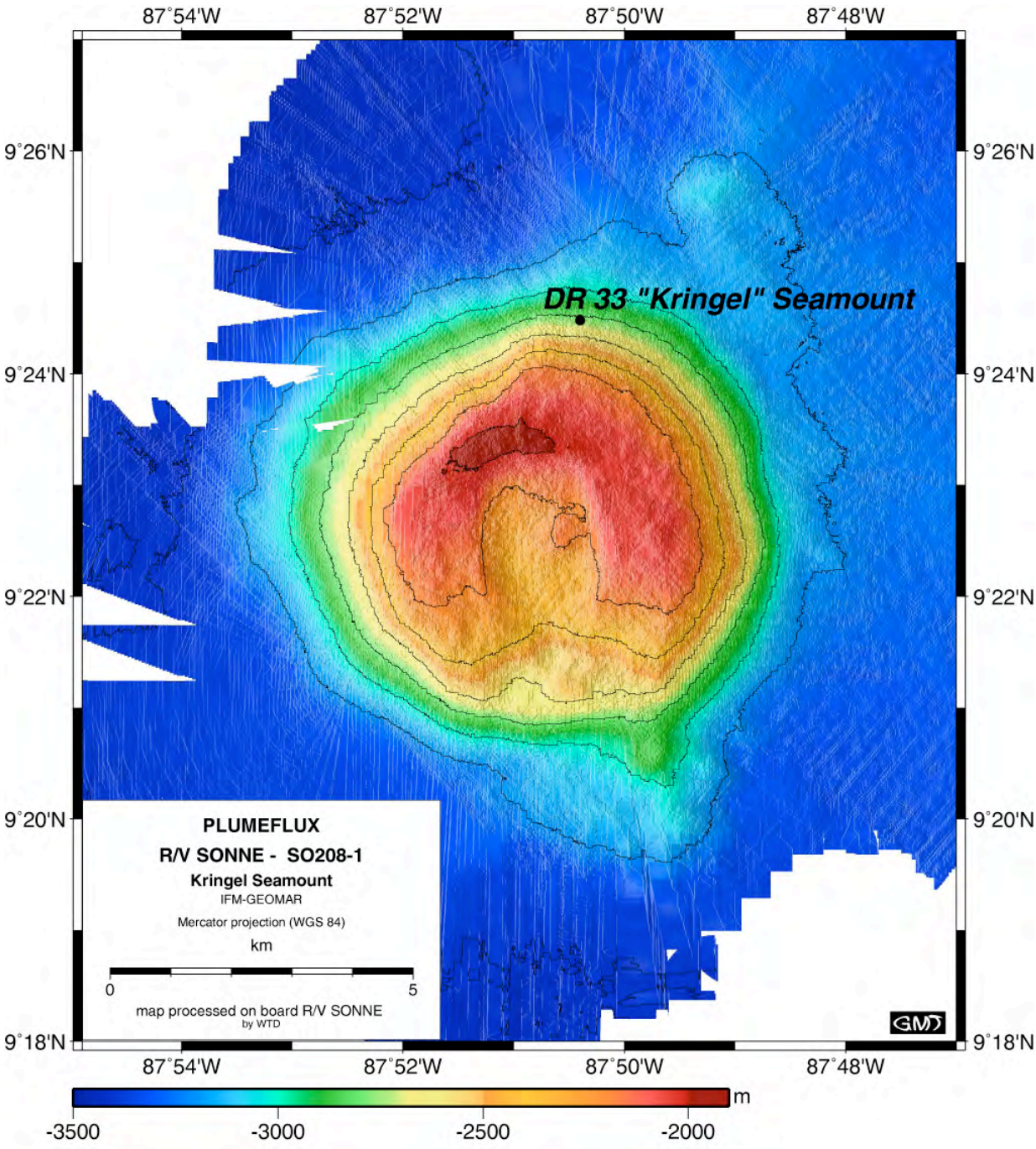

Fig. 5.15.: *Dredge site DR 33 at "Kringel Seamount" (contour interval = 200 m).*

SO208-DR 36 „Bagel" Seamount

Again a very similar seamount type as in the previous locations, with a 9 km base diameter and 1,200 m elevation above the surrounding seafloor along its NW flank (Fig. 5.16.). A 2 km broad and a few hundred m deep crater forms the top of the seamount. Dredge sampling was carried out along the NE flank (2,882 – 2,795 m b.s.l.) and provided only two pieces of basalt in otherwise semi-consolidated sediment along with Mn-nodules. The basalts are fairly dense (<3% vesicles) pillow fragments with a relatively fresh groundmass that contains up to 7% mm to cm sized Pyx phenocrysts. Several pieces of volcaniclastic material containing poorly sorted, angular to subangular, cm to sub-mm sized basalt clasts were also sampled (DR 36-3 to -5). Representative samples of a yellowish-green calcareous sediment and a Mn-nodule were also taken.

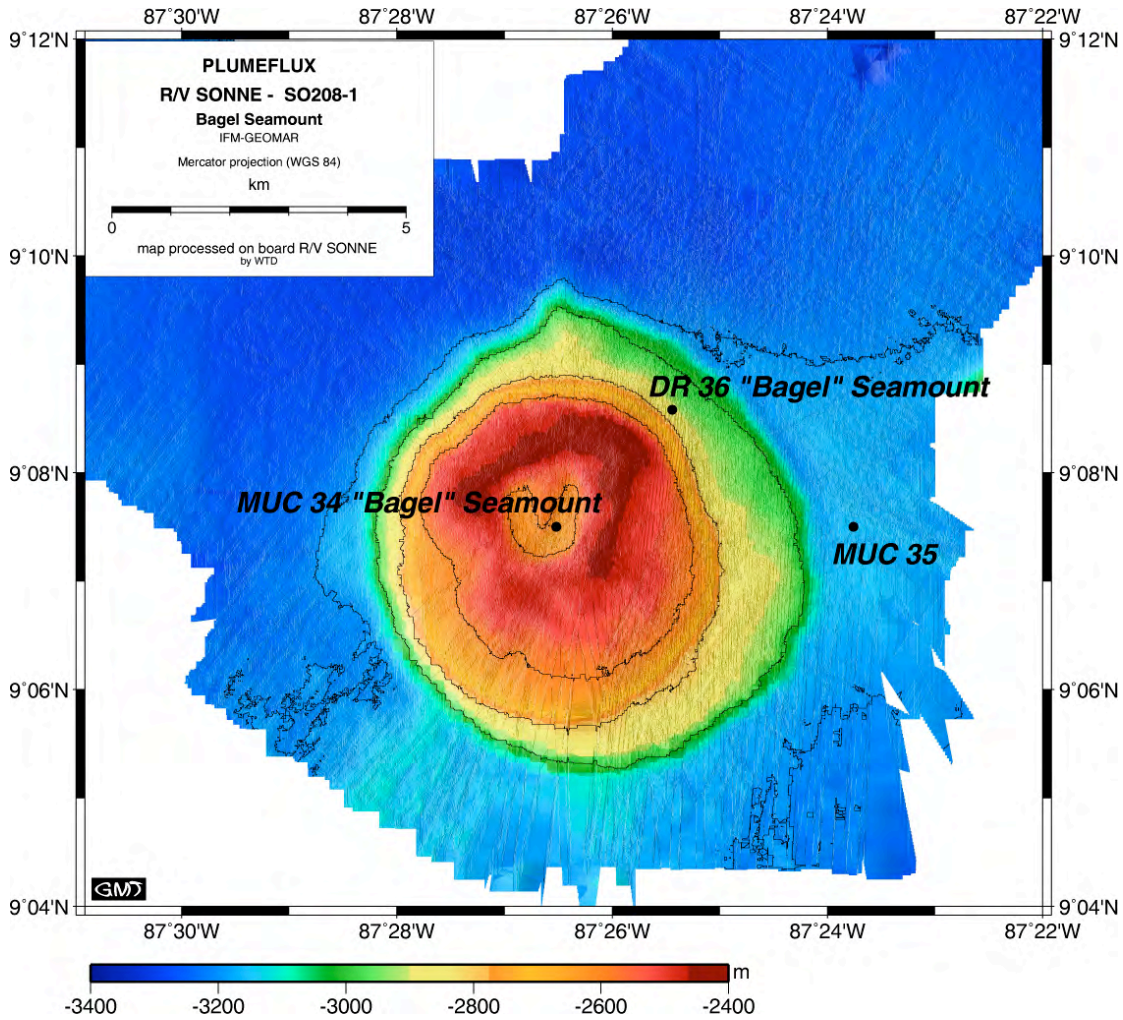

Fig. 5.16.: *Dredge site DR 36 and MUC 34+35 at "Bagel Seamount" (contour interval = 200 m).*

SO208-DR 37 „Ojo" Seamount

This circular seamount elevates c. 800 m above the seafloor with the usual base diameter of 9 km (Fig. 5.17.). The steeper NE flank was dredged (2,654 - 2,339 m b.s.l.) just below the summit and gave only a few, relatively fresh pillow fragments. The lavas are aphyric and dense ranging from slight groundmass alteration (DR 37-1) in the center of pieces to more advanced and thicker alteration halos (DR 37-3).

SO208-DR 38 „Zecke" Seamount

This structure lies about 12 nm NNE of "Ojo" and consists of two fairly small cones that overlap in the NE, leading to the working name "tic" or "Zecke" in German (Fig. 5.17.). The base diameter of the largest cone is 4.5 km and elevates c. 500 m above the seafloor. The dredge track is located along the northern slope of the southern cone and delivered a 1/4 full dredge of medium to highly altered pillow fragments. Notably a volcanicalstic breccia contained large chunks of fresh glass (DR 38-1). The groundmass of the pillow lavas is aphyric and has a low vesicularity (<1%). The chilled margins of some samples may contain minor amounts of fresh glass.

SO208-DR 39 and DR 40 „Hook" Seamount

This seamount marks the last hard-rock sampling location of SO208 Leg1 (Fig. 5.18.). The structures appears a bit elongated in NW-SE direction but in principle has a base diameter ot c. 8km. Dredge haul DR 39 (2,330 – 1,917 m b.s.l.) recovered Ol-Plag-Pyx-phyric, almost dense pillow basalts and Mn-encrusted volcaniclastic rocks from the top of "Hook Seamount". The base of the NE slope DR40 has been carried out at the NE base of the semaount (2,954 - 2,874 m b.s.l.) and recovered only a few subangular pillow basalt fragments. They appear relatively fresh with a light to dark grey groundmass. No phenocrysts are present and the vesicularity is less than 1%. Chilled margins with fresh glass are absent.

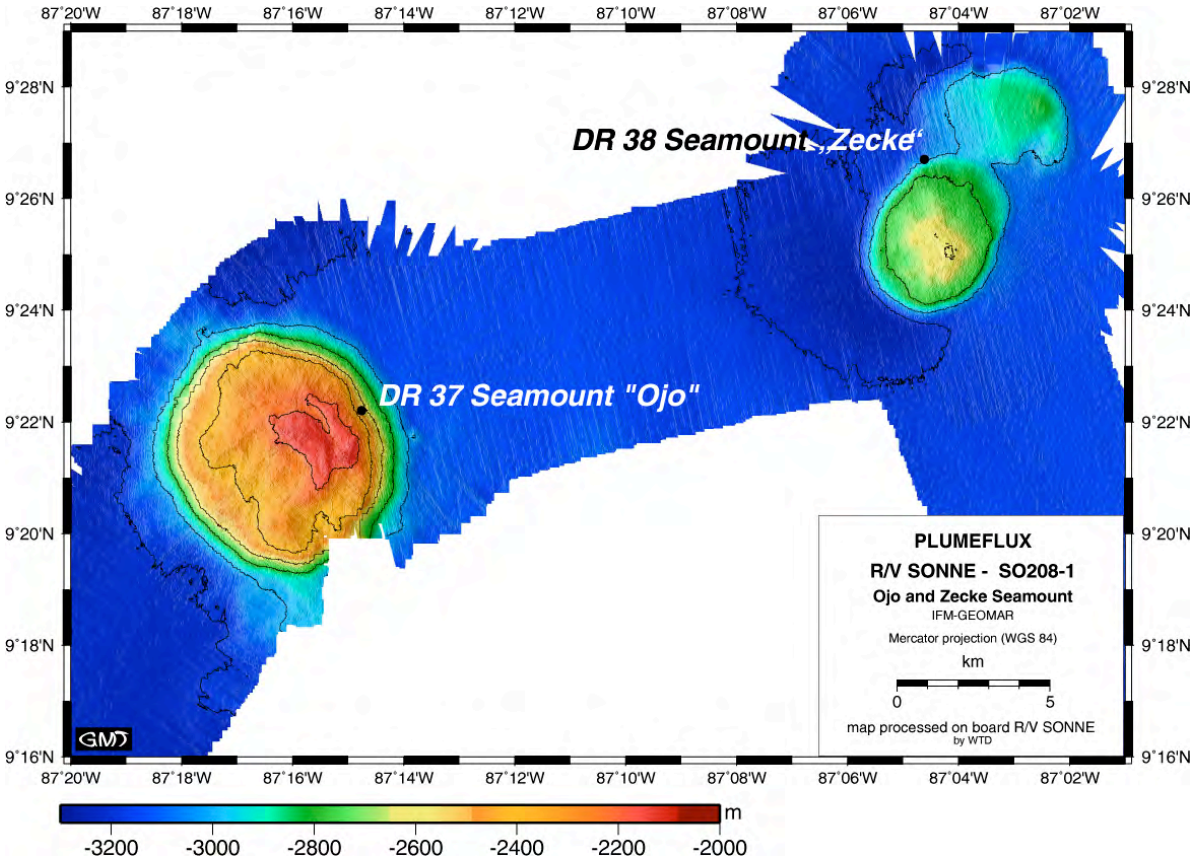

Fig. 5.17.: *Dredge sites DR 37 at "Ojo" and DR 38 at "Zecke" Seamount (contour interval = 200 m).*

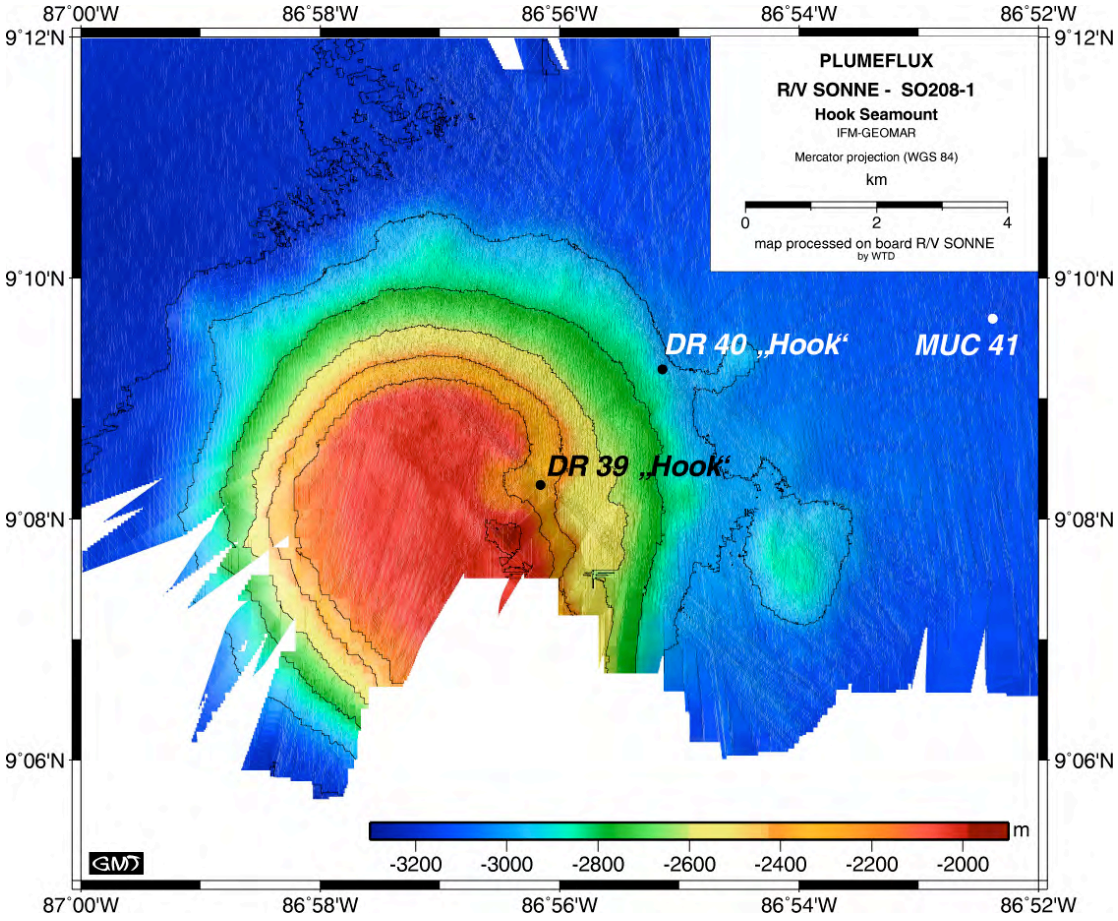

Fig. 5.18.: *Dredge sites DR39 and 40 at "Hook Seamount" (contour interval = 200 m).*

5.1.2. SO208 Leg 2: Cocos-Nazca Spreading Center (DR 44-122, TVG 43, 70, 123)

In total five profiles perpendicular to the Cocos-Nazca Spreading Center (CNS) were sampled during SO208 Leg 2 from west to east (see Appendix V). This chapter gives a description the major features of the profiles and individual sampling stations. Afterwards some preliminary conclusions based on the results of sampling and mapping on SO208 Leg 2 are briefly summarized. Overall, 76 dredge sites have been sampled on Leg 2 and 409 samples were obtained. The position of the profiles were defined by the seafloor morphology of the area around the CNS, special geological features along the ridge and due to geochemical anomalies along the ridge identified on previous cruises (see also chapter 5.1.2.).

Profile 1 (DR 44 – DR 74, TVG 43+70)

Profile 1 is located between 02°06'N and 02°32'N and 91°40'W and 92°00'W (Fig. 5.19., Appendix V). This profile was chosen because previous morphological and geochemical studies have shown that Galápagos plume material is reaching the spreading center at that position (e.g., Schilling et al. 2003, Ingle et al. 2010). Additionally, detailed sampling of this section of the ridge was carried out on R/V ATLANTIS Expedition 15-63. Between 02°04'N and 02°08'N and 91°50'W and 92°07'W the ridge is characterized by an axial high structure with a rifted seamount. Further to the east between 02°00'N and 02°06'N and 91°28'W and 91°50'W the ridge appears in rather valley and ridge type morphology (terminology based on Christie et al. 2005). The area north of the ridge is characterized by a more distinct morphology. Ridge-like structures are intersected by long ridge-parallel depressions with depths of up to 2,400 m b.s.l.. In that area several small conical seamounts can be found. Further to the north follows an area marked by tight sequence of long parallel ridges and up to 2,600 m b.s.l. deep valleys. However, all these units are structured by the same morphological subunits:

(1) valley and ridge type morphology such as between 02°08′N and 02°12′N and 91°49'W and 92°00'W; 02°16′N to 02°18′N and 91°35'W and 91°57'W; 02°21'N and 02°26'N and 91°41'W and 91°59'W, or 02°29'N and 02°31'N and 91°39'W and 91°54'W with deep depressions (max. 2,600 m b.s.l.) (Fig. 5.19., black boxes). These areas are characterized by tight successive ridges and narrow valleys which strike E-W and are sub-parallel to the ridge axis. With increasing distance from the ridge the structures become less pronounced due to subsidence, but it seems that the described patterns continue at least until 02°32′N. Beside this, the valley-like structures become longer with increasing distance from the ridge.

(2) broader bands (e.g. between 02°12′N to 02°16′N and 91°35'W and 91°59'W; 02°18′N to 02°22′N and 91°36'W and 91°59'W, or 02°26'N and 02°30'N and 91°40'W and 91°58'W) with an overall higher elevation and more diffuse morphology; occasionally seamounts or small seamount clusters exist on the crest of these bands (Fig. 5.19., white boxes).

Due to extensive overprinting of the abyssal hills morphology by later hotspot volcanism the morphology south of the ridge becomes more complicated and does not show the same morphological pattern as the north.

Thirtyone stations have been sampled along profile 1. Eight dredges returned empty. In total 131 samples were collected from which 63 samples contained glass in different stages of alteration varying from fresh to highly altered. The degree of alteration increases with increasing distance to the CNS as the material gets older as it moves away from the spreading axis. Between the northernmost samples, assumed to be oldest, and the samples from the ridge axis (assumed to be the youngest) is an variation in age of almost 700 ka (assuming a spreading rate of 7cm/yr).

Sampling of profile 1 started with a TV-grab deployment (TVG 43) directly north of the ridge axis in ~1,680 m water depth. However, the TV-grab failed to return samples failed because of the rough terrain in this area. The first dredge of this profile (DR 44) has been carried out along the NE-facing slope of an irregular shaped, about 50 m high, rifted seamount on top of the CNS. The dredge was deployed from 1,682 to 1,597m b.s.l. and did not obtain any material. As alternative to DR 44, DR 45 was set out 200 m east of DR 44 at the same NE-facing slope of this seamount. This dredge recovered a few rocks of mainly homogeneous pillow fragments with fresh glass. Five samples of aphyric, dense basaltic rock with about 25% feldspar-microphenocrysts and 3 - 5% vesicularity were collected. The material varies from fresh to slightly altered

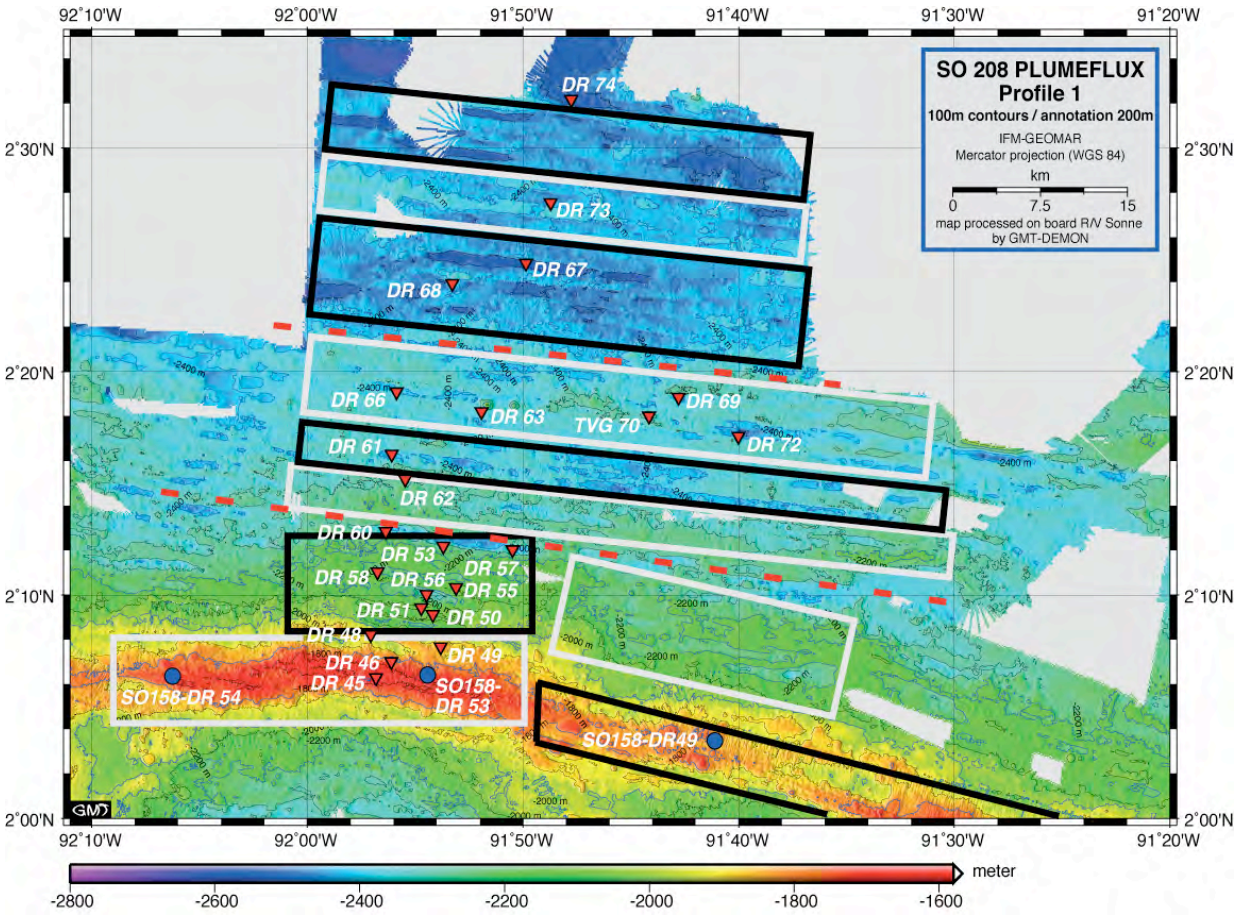

Fig. 5.19.: *Profile 1 extending from the CNS axis ~30 nm to the north at ~91°50´W. The multi-beam bathymetry has been recorded on R/V SONNE cruises SO158, SO208, and on various U.S. American cruises (by courtesy of Scott White). Red triangles indicate the SO208 dredges and TV-grabs which recovered volcanic rocks, blue dots dredge hauls carried out during SO158 on the ridge axis. Black boxes mark areas dominated by valley and ridge type morphology, white boxes mark broad elevated bands.*

DR 46 was conducted 1.5 nm northeast of DR 45 along the NE facing slope of a ridge extending parallel to the spreading center. The dredge (1,844 to 1,785 m b.s.l.) obtained a pillow fragment with fresh glass. The lava is aphyric, dense with <1% feldspar-microphenocrysts and 5% vesicularity. About 1.5 nm NW of DR 46, DR 47 was conducted at same NE facing slope in 1,848 to 1,810 m water depth. Unfortunately this dredge returned empty.

DR 48 was carried out along the second ridge north of the CNS from 2,099 to 1,869 m water depth. This dredge yielded aphyric, dense pillow fragments from which eight were sampled. All these samples show a similar lithology with <1% feldspar-microphenocrysts and a vesicularity of 3%. DR 49 was deployed along the same ridge 3 nm east of DR 48 from 1,978 to 1,835 m b.s.l. Several fresh pillow fragments were recovered from which six samples were collected. Four samples contain fresh glass. All samples show the same lithology, aphyic lava with about 25% feldspar-microphenocrysts and 3 - 5% vesicularity.

DR 50 was conducted 7 nm north of the spreading axis along a ridge extending parallel to the CNS. The dredge returned half full with mainly pillow fragments from water depths of 2,125 to 2,113 m. In total 11 samples were collected from which 3 contained fresh glass. The fresh pillow fragments are aphyric and dense with about 20 – 25% feldspar-microphenocrysts and 3% vesicularity. DR 51 is located 1 nm east of DR 50 along the same ridge and was carried out from 2,123 to 2,099 m water depth. Several rocks were obtained at that site and two different lithologies collected. From nine samples four are very fresh, glassy to cryptocrystalline sheet lava, containing 10% feldspar-microphenocrysts. The other five samples are fresh pillows with two of them providing glass. The pillows are cryptocrystalline with 15 - 20% feldspar-microphenocrysts and 5% vesicles.

DR 52 was carried out 3 nm north of DR 51 along another ridge striking parallel to the spreading center. The dredge returned empty from water depths of 2,281 to 2,150 m b.s.l. DR 53 was the second attempt to sample this ridge. The location is about 10.5 nm east of DR 52 along the same scarp. Several pillow fragments were recovered and five samples were collected, none of these samples did contain glass. The pillow fragments are characterized by a dense, almost aphyric matrix with less than 1% feldspar and a vesicularity of 7%. About 1 nm south of DR 53, DR 54 was conducted in a flat area. Unfortunately this dredge returned empty from water depths of 2,196 to 2,179 m b.s.l.

DR 55 was set out 2 nm southeast of DR 54 along the N-facing slope of another parallel to the CNS striking ridge. The dredge returned with aphyric and dense pillow fragments with feldspar-microphenocrysts and varying vesicularity of 1 - 3%. Three samples range from slightly altered to altered, one sample contained glass.

DR 56 is located 1.5 nm WSW of DR 55 along the N-facing slope of a small seamount. This dredge provided two samples of feldspar-rich pillow fragments, with abundant feldspar (30%) and 5% olivine. The medium altered samples have a vesicularity of <1% and seem to be the same lithology. One sampled contained glass.

DR 57 was carried out along a N-facing slope of a E-W striking ridge located ~6 nm north of the CNS axis. The dredge haul was conducted at water depths from 2,433 to 2,144 m and yielded honogeneous pillow lavas with fresh glass. Five samples containing glass were collected. The pillow fragments are cryptocrystalline and massive with 2 - 3% feldspar and 7% vesicles.

DR 58 sampled a N-facing slope of another E-W striking ridge located ~5 nm north of the CNS axis. This dredge (2,185 to 2,170 m b.s.l.) was to one quarter filled and yielded 11 samples with four different lithologies. Four of the samples contained fresh glass. The most abundant lithology are cryptocrystalline basaltic pillows with 2 - 3% feldspar and 2 - 7% vesicularity. Notably spherolites can be observed at these samples. Glassy to cryptocrystalline sheet lava with olivine and <1% feldspar–microphenocryts and 1% vesicles is the second most abundant lithology. The third lithology is lava with a brecciated top. The clasts of the breccia are cryptocrystalline with 30% feldspar-microphenocrysts and 1 - 2% vesicularity. Beside volcanic material one piece of pelagic calcareous sediment was also collected. This sample contains glass shards of up to 4 mm thickness (see chapter 5.3.2. ”Epiclastic volcanogenic deposits”).

DR 59 was conducted northeast of DR 58 at a little “hole”-like structure ~6 nm north of the CNS axis. This dredge returned empty.

DR 60 is located 1.5 nm NNE of DR 59 along the NE-facing flank of a depression. The dredge haul (2,263 to 2,155 m b.s.l.) yielded several rocks comprising mainly cryptocrystalline pillows and pillow fragments with 25 - 30% feldspar-microphenocrysts and 5% vesicularity. Four of nine samples contained fresh glass.

DR 61 was conducted ~9 nm north of the CNS axis along a N-facing slope of an E-W striking trough. The dredge (2,456 to 2,273 m b.s.l.) returned 1/5 filled and recovered eight samples of dense, aphyric pillow fragments which contain <3% feldspar-microphenocrysts and <1% vesicles. All samples provided fairly fresh glass

Station DR 62 is located 1 nm southeast of DR 61 and aimed to sample a small irregular shaped seamount on the northern edge of an E-W striking elevated band. DR 62 collected aphyric and dense pillow fragments with altered glass crusts from water depths of 2,316 to 2,219 m. The two samples taken appear to be the same lithology with 1 - 3% feldspar-microphenocrysts, some pyroxene (<1%) and <1% vesicles.

About 4 nm further northeast, three E-W aligned seamounts are located on a broad elevated band. Dredge DR 63 aimed for the the SW-flank of the westernmost of these seamounts. The dredge returned from water depths between 2,357 and 2,159 m with a few rocks. The collected material seems to be rather similar but shows minor differences in the abundance of olivine and vesicles. The dense, basaltic samples contain 1 - 2% olivine phenocrysts and are with 40 - 45% vesicles highly vesicular. In total seven samples were collected, none of them contained glass. DR 64 aimed for the middle of the three seamounts, about 1 nm east of DR 63. Unfortunately this dredge did not obtain any material. TVG 70 was performed almost on top of the easternmost seamount. The water depth ranges from 2,168 to 2,307 m. The TV-grab returned on board to 100% filled with sediment and 2 small pieces of

vesicular basalt. The vesicular basaltic material is massive, dense and with phenocrysts of feldspar (20%) and olivine (1%) and shows a vesicularity of 40%. DR 71 aimed for the northern flank of the seamount at water depths of 2,377 to 2,182 m but returned empty.

DR 65 is located along the S-facing slope of a small E-W striking ridge 1 nm north of DR 64. This dredge haul (2,408 to 2,347 m b.s.l.) failed to return samples.

DR 66 was carried out ~13 nm north of the CNS axis at an E-W striking, ridge parallel slope with a cone-like elevation on top. The dredge recovered several rocks from water depths between 2,448 and 2,342 m. Nine samples were collected which seem to represent three different lithologies: (1) Basaltic pillows and pillow fragments with glassy crusts are most abundant. They are massive and almost dense with 25 - 30% feldspar-phenocrysts and 2 - 3% vesicles. (2) Cryptocrystalline olivine-phyric basaltic pillows with phenocryts of olivine (1 - 2%) and feldspar (20%) and 2% vesicularity. (3) Glassy, massive rocks with spherolitic fibrous material and no vesicles.

DR 67 run along the S-facing slope of an E-W striking, ridge parallel fault scarp located ~18 nm north of the CNS axis. The dredge returned filled to 1/3 with pillows and pillow fragments. In total 13 samples ranging from slightly to highly altered were collected which appear to be the same material but show variations in degree of alteration and phenocryst content. The pillow fragments are aphyric and dense and contain microphenocrysts of <1% feldspar and pyroxene and 3 - 10% partly filled vesicles. Two samples show major variations in content of phenocrysts. One sample is aphyric and dense without any phenocrysts, whereas the other is microcrystalline with spherolites, 3% pyroxene and <1% feldspar-phenocrysts. Nine of these samples contained glass.

DR 68 was carried out ~3.5 nm WSW of DR 67 along the southern flank of an E-W striking ridge. The dredge returned from water depths of 2,461 to 2,319 m with one rock. This aphyric and dense pillow fragment is very altered, contained <1% feldspar and pyroxene and probably highly altered olivine. The vesicularity is <1%.

DR 69 is located northeast of the easternmost of the three seamounts sampled by DR 63, 64, 71, and TVG 70 (see above). The dredge haul was conducted in water depths from 2,411 to 2,278 m at the S-facing slope of a E-W striking ridge and recovered mainly basaltic pillows with little fresh glass and one thick lava flow fragment. The pillows seem to be similar but differ in the abundance of olivine. In general the pillow samples are massive and dense and range from glassy to cryptocrystalline. The content of microphenocrysts amounts to ~15 - 20% feldspar and 1 - 2% olivine, the vesicularity ranges between 2 - 5%. The lava flow fragment is characterized by a cryptocrystalline texture with microphenocrysts of feldspar (blocky fsp 1%, needle-like fsp 15%) and pyroxene (2 - 3%) and 2 - 3% vesicles. Six samples have been collected, three of them provide fresh glass.

DR72 was conducted ~14 nm north of the CNS axis along the N-facing ridge flank of a basin-like, E-W striking depression. This dredge recovered several pieces of rocks from water depths between 2,475 and 2,287 m. Six samples were collected. Three of them provided fresh glass. The two lithologies found in this dredge are (1) glassy and massive lava flow fragments with 1% olivine- and 3% feldspar-microphenocrysts and 2 - 3% vesicles and (2) massive, aphyric pillow fragments with 3 - 4% vesicles.

DR 73 is located ~21 nm north of the CNS axis along the N-facing slope E-W striking ridge. This dredge obtained pillow fragments that appear similar in lithology. Three slightly to very altered pieces were collected. They are dense and aphyric in texture and contain 1% feldspar- and pyroxene-microphenocrysts and 3% vesicles. These samples are highly Mn-encrusted and do not contain glass.

DR 74, being located ~27 nm (or 50 km) north of the CNS axis, is the northernmost dredge station of profile 1. The dredge haul was carried out along the N-facing slope of the northernmost mapped E-W striking ridge. The dredge has been conducted in water depths between 2,579 to 2,405 m and yielded two pieces of medium to highly altered pillow lava. One sample provided glass. One pillow fragment is dense (<1% vesicularity) and almost aphyric with 1 - 2% pyroxene and 1% feldspar. The second pillow fragment is similar but shows minor differences in the amount of pyroxene (<1%) and vesicularity (<3%).

Profile 2 (DR 75 – DR 84)

Profile 2 covers the area between 00°55'N and 01°05'N and 90°12'W and 90°43'W Fig. 5.20.). This area is the transition zone from the eastern CNS into the 91°W Transform Fault (see Fig. 3.1.) and represents the shallowest part of the ridge axis. That part of the ridge is located closest to the active volcanic islands in the main part of the Galápagos archipelago. Furthermore it is the location where the most pristine plume material reaches the ridge. This unique geological setting is the reason why this profile was chosen for sampling.

Between 00°55'N and 01°02'N and 90°27'W and 90°38'W, two caldera-like structures or pulled-apart basins exist (Fig. 5.20.) Similar to profile 1 (but not to the extend as in profile 1) valley and ridge-like structures are present with increasing distance to the ridge axis (between 00°56'N and 01°04'N and 90°10'W and 90°23'W). Beside this there are also some spilt seamounts on this profile, which have been formed at the ridge axis of the CNS and have been split as the plates move away from each other.

In total 10 stations were conducted and 89 samples collected. 75 samples contained glass for further analysis. The sampling was mainly carried close to the ridge axis, only a few positions were chosen farther away north of the ridge. The profile was kept to the relative short distance of ~8 nm because further north Cocos Ridge begins (see Fig. 3.1.). The estimated ages of the rocks sampled along profile 2 amount up to ~220 ka for the northernmost samples (assuming a spreading rate of 7cm/yr).

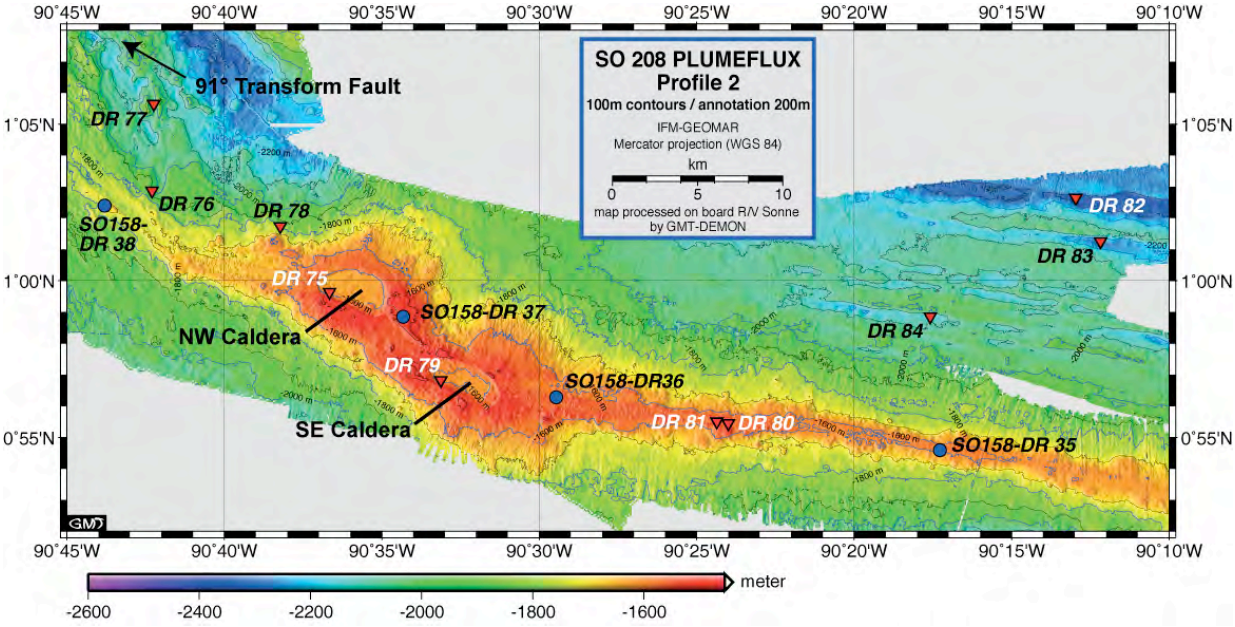

Fig. 5.20.: *Profile 2 at the most volumious part of the eastern CNS direclty east of the 91° Transform Fault. Symbols and data sources as in Fig. 5.19.*

DR 75 was the first dredge station along profile 2 and has been conducted at the inner southern slope of the northwestern caldera-like structure near S0158 dredge station 37 (Fig. 5.20.). The dredge haul (1,612 to 1,490 m b.s.l.) yielded a 100% filled dredge containing mainly sheet flow fragments as well as some pillow fragments and plenty of fresh glass. In total 24 samples were collected with 19 containing fresh glass. The pillow fragments are aphyric and show variations in texture from crypto- to microcrystalline with <1% feldspar-microphenocrysts. The vesicularity ranges between 1 - 10%. Beside the pillow fragments and glassy sheet lava fragments, volcanic material with crystalline structure and 5% feldspar-phenocrysts represents a third lithology which is more altered than the rest of the material.

DR 76 is located at the NE-facing slope of a ridge-like structure SSE of the 91°W Transform Fault. The dredge (1,937 to 1,744 m b.s.l.) returned filled to one quarter with several large boulders of pillow and sheet lava. Eight samples were collected with 7 containing glass. The material appears quite homogeneous, aphyric, microcrystalline pillows with 30% feldspar, 3 - 5% pyroxene, 1% olivine and <1% vesicles. Variations within the samples occur in the abundance of olivine and feldspar.

The northernmost station of profile 2 is DR 77 (2,067 to 1,871m b.s.l.) at the southern tip of the 91° Transform Fault. DR 77 was carried out at the east-facing slope of the western half a split seamount. Pillow and pillow fragments were recovered and in total 11 samples were collected with 7 samples providing glass. The material varies from fresh in the center to altered at the surface and has major differences in texture, vesicularity and abundance of (micro)phenocrysts. One lithology is formed by porphyric, microcrystalline pillows with 10 - 20% feldspar, 3% pyroxene, 1% olivine and 10 - 15% vesicles. The second lithology comprise fine grained, very dense pillows with microphenocrysts of 40% feldspar and 40% pyroxene and 1% vesicularity.

DR 78 was set out east of the 91° Transform Fault northwest of the northeastern caldera (Fig. 5.20.). The dredge haul was conducted from 1,793 to 1,592 m b.s.l. along the NE-facing slope of a ridge beneath a circular cone. Pillow fragments and a pillow tube were collected, all of them containing glass. There are differences in texture and vesicularity. The pillows are porphyric with microcrystalline texture, 7% feldspar, 1 - 2% olivine and 10% vesicles. The pillow tube is aphyric and microcrystalline with 7% feldspar- and <1% olivine-microphenocrysts, 5% vesicles and unfilled vugs in the center.

DR 79 was carried from 1,599 to 1,516 m b.s.l. out at the NE-facing inner wall of the second, southeastern caldera (Fig. 5.20.). The dredge was filled to 1/3. Ten samples of two different lithologies were collected. Five contained fresh glass. Most abundant are massive, dense pillow basalt fragment, which vary from glassy to cryptocrystalline and contain 15 - 20% feldspar, 2 - 3% olivine and 5 - 7% vesicles. Second abundant are pieces of glassy to very cryptocrystalline sheet lava with about 5% vesicles and no visible (micro-) phenocrysts.

DR 80 was conducted from 1,560 to 1,515 m b.s.l. at the north-facing steep flank of the southern half of another split seamount on this profile. The quarter full dredge contained aphyric microcrystalline pillow fragments. Seven out of nine samples collected from this dredge contained fresh to fairly fresh glass. The pillow lavas are homogeneous with 15% feldspar-(micro-)phenocryst, <1% pyroxene and 20% vesicles. After sampling of the split seamount DR 81 was carried out from 1,558 to 1,569 m on the flat seafloor between the two half's of the seamount and yielded two samples of pillow fragments with fairly fresh glass. These are aphyric and massive with 10% feldspar (micro-)phenocrysts and 20 - 30% vesicles.

DR 82 is the location farthest away from the ridge axis (~8 nm to the north). This dredge haul (2,404 to 2,221m b.s.l.) was carried out at the S-facing slope of an E-W striking ridge. In total 14 samples were collected, nine of them contained glass. Obviously all samples show the same lithology with minor variations in vesicularity and abundance of phenocrysts. The samples are as aphyric, crypto- to microcrystalline pillow fragments with <5% feldspar and pyroxene (micro-) phenocrysts and 3 - 15% vesicles.

DR 83 is located 1.5 nm SSE of DR 82 and was conducted on another E-W striking ridge. This dredge was filled to 1/3. The recovered material range from sheet and pillow lava with some spectacular lava flow features (e.g. Pahoehoe lava). Nineteen samples were collected with 15 containing glass. The sheet lava fragments are aphyric and amorphous to cryptocrystalline. The pillow lavas are aphyric, fine grained with <0.5% feldspar-phenocrysts, 1 - 5% vesicles and large degassing pipes. Furthermore volcaniclastic rocks consisting mainly of basalt cores with breccia-like surroundings and chips of fresh glass were obtained (see chapter 5.3.1. "Hyaloclastic pillow and sheet lava flow breccias").

The last dredge of this profile (DR 84) was conducted from 2,121 to 1,994 m b.s.l. along the southern slope of another E-W striking ridge being located ~4.5 nm north of the CNS axis. The dredge recovered a large amount of homogeneous pillow lava. Five samples, all with fresh glass, have been collected. The pillows are aphyric, fine grained and dense with microphenocrysts of feldspar and 5 - 10% vesicles.

Profile 3 (DR 85 – DR 98)

Profile 3 is located between 00°50'N and 01°16'N and 89°26'W and 89°36'W. This section of the ridge is characterized by an axial high with a continuous narrow crest (Christie et al. 2005). Between 00°46'N and 00°51'N and 89°30'W and 89°33'W a distinct spilt seamount has formed (Fig. 5.21.) which represents a major enriched geochemical anomaly (Hoernle, Hauff et al. unpubl. data). Profile 3 extends from the split seamount ~26 nm to the north. The major morphological features along this profile are similar to those of profile 1. Broader elevated bands (e.g. 00°50'N and 00°57'N, 01°005'N and 01°02'N, 01°10'N and 01°12'N, 01°14'N and

01°16'N) alternate with valley and ridge type structures, partly with water depths of more than 2,400 m. Other morphological features include trough-like E-W striking structures trending parallel to the CNS. Another interesting structure is a lava plateau that seems to have filled up the eastern end of a trough (DR 89, Fig. 5.21.). In total 13 stations have been sampled resulting in 47 samples with 30 samples providing volcanic glass. Because of the rather smooth morphology 5 stations did not yield volcanic rocks. Assuming a spreading rate of 7cm/yr, the structures sampled along profile 3 range in age from ~62 to ~700 ka.

DR 85 is located at the northern half of the split seamount along the steep S-facing flank just north of the CNS axis. Since this dredge (1,875 to 1,687m b.s.l.) returned empty, a second attempt was made to sample this structure. Dredge DR 87 was conducted from 1,958 to 1,674 m b.s.l. from the base of this seamount up to its the N-facing slope, ideally to sample the base and the seamount itself. The dredge was to 1/7 filled with sheet lava fragments from which 11 samples have been collected. All of these samples contain glass and are homogeneous aphyric microcrystalline sheet lava with 1% feldspar (micro-)phenocrysts and 5% vesicles.

DR 86 was carried out from 2,138 to 2,070 m b.s.l. along the N-facing slope of an E-W trending ridge about 6 km north of the ridge axis. However, this dredge didn´t yield any samples.

DR 88 was deployed from 2,244 to 2,095 m bs.l. at the N-facing slope of the second major E-W striking ridge ~5 nm north of the CNS axis. One piece of sheet lava and one pillow fragment were obtained. The pillow fragment is aphyric and cryptocrystalline with (micro-)phenocrysts of feldspar (3%), pyroxene and olivine (<1%) and 3% vesicles. The sheet lava provides fresh glass, is aphyric and microcrystalline and contains 1% feldspar-microphenocrysts and 5% vesicles.

DR 89 was conducted from 2,185 to 2056 m b.s.l. at the NW-facing slope of the lava plateau that seems to have filled the eastern end of an E-W trending graben-structure (Fig. 5.21.). Fourteen samples were collected, all of them providing glass. The samples represent two different lithologies: (a) aphyric pillow fragments with no obvious (micro-)phenocrysts and ~6% vesicles and (b) porphyric, almost dense pillow fragments with (micro-)phenocrysts of <1% feldspar and 1% olivine and 1% vesicularity.

DR 90 is located 1 nm north of DR 89 at the N-facing slope of an E-W striking trough. The dredge haul (2,296 to 2,136 m b.s.l.) yielded pillows and pillow fragments from which five samples were collected. Three of these samples contain glass but overall the material appears to be homogeneous. The pillows and pillow fragments are porphyric and microcrystalline with phenocrysts of olivine and feldspar and 1% vesicles.

The next E-W striking trough to the north was sampled by DR 91. The dredge haul was conducted from 2,214 to 2,115 m b.s.l. at a S-facing slope beneath a small cone. Four samples were collected with one containing glass. The material represents two different lithologies which are microporphyric basaltic lava with 5 - 10% feldspar (micro-)phenocrysts and 7% vesicles and aphanitic, massive, cryptocrystalline basaltic lava with 10% feldspar-(micro-)phenocrysts and 10% vesicles.

DR 92 operated 5 nm north of DR 91 from 2,373 to 2,325 m b.s.l. along the N-facing slope of an E-W striking ridge. Seven samples of fairly coarse grained crystalline basaltic lava fragments have been collected (no glass is present). There is a gradation in texture from microcrystalline to crystalline and variations in the abundance of microphenocrysts and vesicularity. The samples that show a rather crystalline texture contain two generations of feldspar (5 - 15%) and 5% vesicles. Samples with a more fine crystalline texture contain up to 20% feldspar and ~10% pyroxene. Their vesicularity varies between 3 - 7%. The microcrystalline samples contain only 2 - 3% of feldspar and have 7 - 10% vesicles.

DR 94 aimed to sample the NW-facing slope of an irregular shaped seamount within a cluster of seamounts ~13 nm north of the CNS axis. The dredge haul was carried out in water depths from 2,295 to 2,203 m b.s.l. but failed to recover samples.

DR 95 is located 4 nm northeast of DR 94 at the N-facing slope of a broad E-W striking ridge structure ~16 nm north of the CNS axis. Unfortunately this dredge (2,404 to 2,265 m b.s.l.) returned empty, too. The second attempt to sample this ridge was made with DR 96 located northwest of DR 95. Two aphyric pillow fragments having a micro- to cryptocrystalline matrix with feldspar-microphenocrysts and 5 - 7% vesicles were collected from 2,378 to 2,280 m b.s.l..

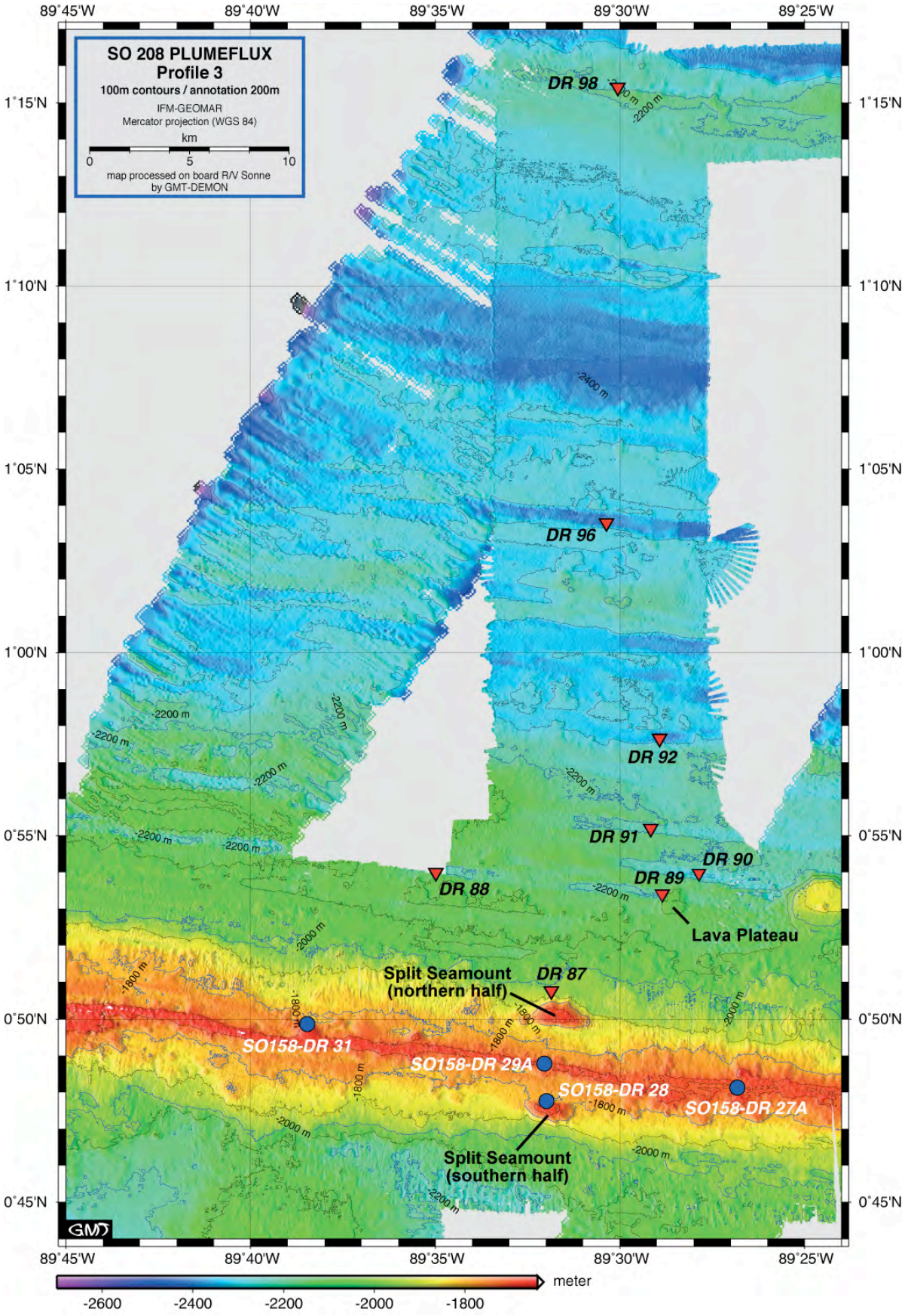

Fig. 5.21.: *Profile 3 extending from the split seamount at ~89°32´W approximately 26 nm to the north of the CNS axis. Symbols and data sources as in Fig. 5.19.*

DR 97 was set out 2 nm north of DR 96 at the N-facing slope of an E-W striking ridge. The dredge (2,314 to 2,230 m b.s.l.) did not yield any rocks.

DR 98 is the northernmost station of this profile. It was conducted along the N-facing slope of an E-W striking ridge. The dredge (2,263 to 2,165 m b.s.l.) obtained few pieces of pillows and pillow fragments. Three samples were collected with one providing volcanic glass. The collected material is aphyric with 2 - 4% vesicles.

Profile 4 (DR 99 - DR 118)

Profile 4 is located between 00°20'N and 01°20'N and 89°00'W and 89°15'W (Fig. 5.22.) where the ridge is characterized by an axial high morphology with a narrow axial summit trough that peters out into a narrow crest (Christie et al. 2005). The morphology adjacent to the CNS is similar to those described for profiles 1 and 3. Broader elevated bands are repeatedly intersected by narrow, tight successive valley and ridge like structures. However, unlike profiles 1, 2, and 3, the same morphological pattern exists to the north and to the south of this section of the ridge. Overprinting effects due to an increased plume influence, as observed further to the west in the area south of the CNS, are not developed and a nicely mirror image can be recognized. Profile 4, extending ~30 nm to the north and ~ 27 nm to the south of the CNS axis, is the only profile were probably corresponding morphological features to both sides of the CNS have been sampled. In total 93 samples were collected at 19 sampling sites with 49 samples containing glass. Three dredges returned empty. Based on a spreading rate of 7cm/yr, the ages of the samples are calculated of up to ~720 ka (DR 106 in the north).

DR 99 is located 1 nm north of the ridge axis at a small offset zone of the axis. The dredge (1,730 to 1,734 m b.s.l.) yielded two homogeneous, fine cryptocrystalline pillow fragments with glassy crusts, 3 - 5% feldspar-(micro-)phenocrysts and 5 - 7% vesicles.

DR 100 was carried out directly on the CNS axis, representing basically "zero" age. The dredge haul was made from 1,715 to 1,720 m b.s.l. in a subtle graben structure and recovered hydrothermal deposits which represent most likely hydrothermal altered volcanic material under formation of FeS_x, manganese, galena, dolomite, bornite etc.

DR101 was conducted east of SO158 dredge station 25A (a local depleted geochemical anomaly; Hoernle and Hauff unpublished data) and aimed to sample the E-W striking rift valley on top of the CNS axis. The dredge (1,770 to 1,762 m b.s.l.) returned to 2/3 filled with pillow fragments and pieces of shield lava. In total 20 samples were collected from which 14 provide glass. The pieces of sheet lave are characterized by an aphyric texture with 10 - 15% vesicles and degassing pipes. The pillows and pillow fragments are aphyric as well, but contain microphenocrysts of feldspar and probably olivine and show a varying vesicularity of <2 - 10%.

Three dredge hauls (DR 102 – 105) have been conducted ~45 nm north of the ridge axis at presumably > 1 mill. years old structures but unfortunately failed to return volcanic rocks suitable for geochemical analysis. DR 102 is the northernmost sample location of this profile and aimed to sample an oval shaped seamount within an E-W striking trough surrounded by other small cones. Two pieces of calcareous soft sediment with foraminifera and bioturbations were recovered. DR 103 focused on the SW-facing slope of a seamount ~0.75 nm south of DR 102. Unfortunately this dredge (2,493 to 2,314 m b.s.l.) did not obtain any material. DR 104, located ~1.5 nm southeast of DR 103, aimed for the N-facing slope just beneath a small elevation on top of an E-W trending ridge. The dredge collected some rocks from water depths between 2,537 and 2,354 m b.s.l. These rocks are heavily altered and are marked by thick Mn-crusts and various secondary mineralizations. Four samples of highly altered breccia with chunks of highly altered glass and several other alteration products have been collected.

DR 105 is the northernmost dredge site of profile 4 which yielded fairly fresh volcanic rocks. The dredge was conducted ~30 nm north of the CNS axis along the NW-facing slope of an irregular shaped seamount within a cluster of seamounts. DR 105 yielded pillows and pillow fragments including four samples containing volcanic glass. The rocks are characterized by an aphyric texture with dense and microcrystalline matrix containing microliths of feldspar (<1%), pyroxene (1%) and olivine (<1%) and 1 - 3% vesicles.

DR 106 was deployed from 2,448 to 2,200 m b.s.l. at the N-facing slope of the northernmost E-W striking ridge of profile 4. A few rocks were obtained, none of them contains glass. Four samples of aphyric, microcrystalline pillow fragments with <1 - 1% feldspar- and pyroxene-microphenocrysts and 7 - 10% vesicularity have been taken.

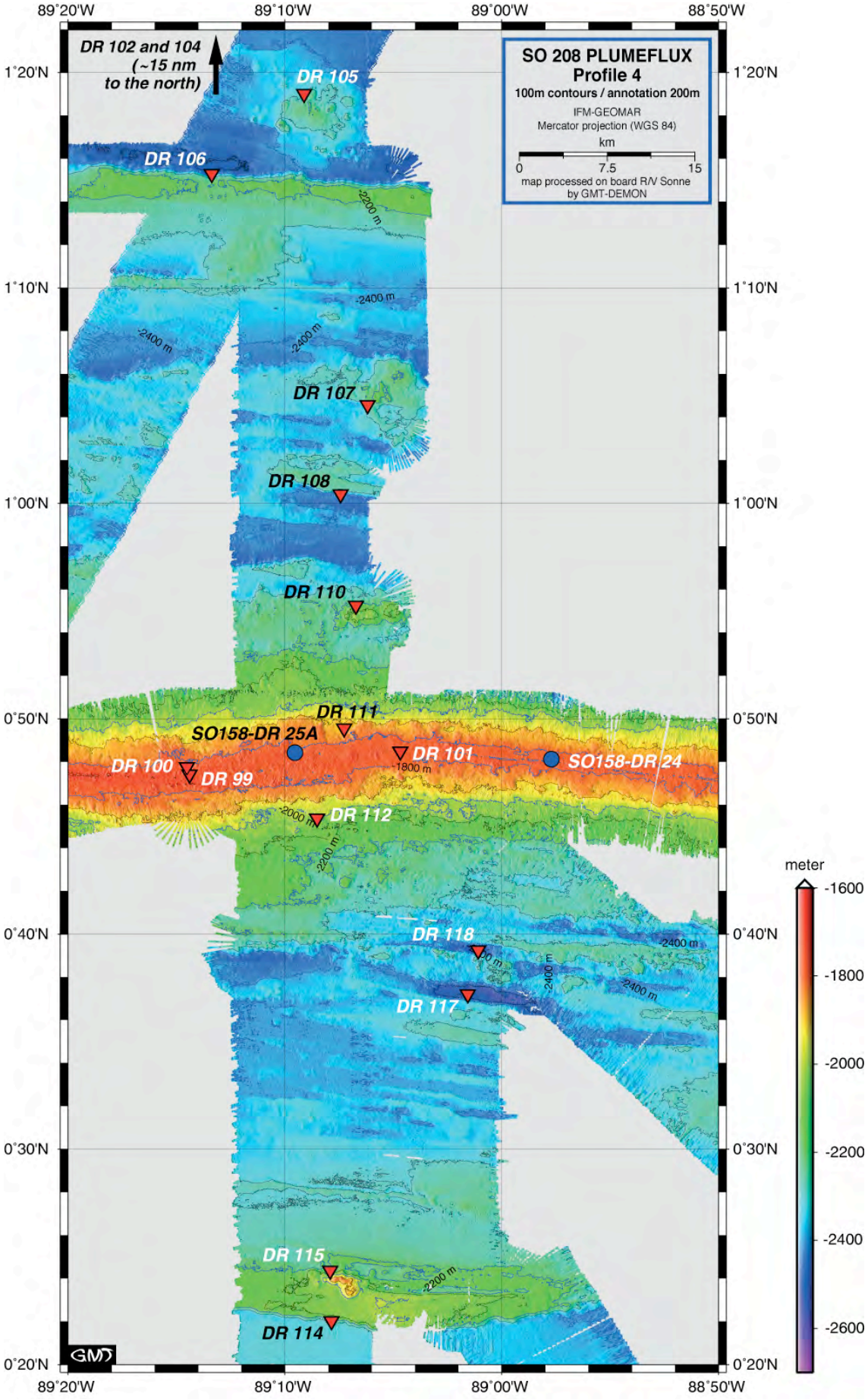

Fig. 5.22.: *Profile 4 extending extending ~30 nm to the north and ~ 27 nm to the south of the CNS axis at ~89°07´W. Symbols and data sources as in Fig. 5.19.*

DR 107 was carried out along the southwestern flank of an E-W striking plateau-like structure marked by small cones on top and a fault cutting through its southern part. The dredge (2,320 to 2,163 m b.s.l.) returned half full with pillows and pillow fragments. Nine samples were collected, three of them contain fresh glass. The majority of the samples are aphanitic basaltic pillow fragments with 20% feldspar-phenocrysts and 2 - 3% vesicles. Additionally, hydrothermal altered rock fragments and manganese crusts have been collected.

DR 108 focused on the S-facing slope of an E-W striking fault ~14 nm north of the CNS axis. The dredge haul (2,400 to 2,248 m b.s.l.) recovered several rocks from which 11 were collected with 6 samples containing glass. The lithologies include aphanitic pillow-lava fragments with about 30% feldspar-(micro-)phenocrysts and 5 - 7% vesicles, glassy to cryptocrystalline sheet lava with microphenocrysts of feldspar (5-20%), and hyaloclastites with glassy clasts (see chapter 5.3.2. “Hyaloclastic pillow and sheet lava flow breccias”).

DR 109 was conducted in water depths between 2,439 to 2,253m b.s.l. along the N-facing slope of an E-W trending ridge ~4 nm south of DR 108. Apart from a small starfish nothing was obtained.

DR 110 is located ~7 nm north of the CNS axis and aimed to sample the N-facing flank of an irregular shaped volcanic edifice within a cluster of several seamounts. Pillow fragments, partly with fresh glass crusts, were obtained from water depth of 2,232 to 2,020 m b.s.l. Two of the four collected samples provide fresh glass. The pillow fragments are aphyric and microcrystalline with (micro-)phenocrysts of feldspar (1%) and pyroxene (<1%) and <3% vesicles.

DR 111 sampled the N-facing slope of an irregular shaped E-W trending elevation at the northern flank of the CNS. The dredge haul (1,872 to 1,788 m b.s.l.) yielded two pieces of none vesicular, dense, glassy to amorphous sheet lava.

DR 112 was the first sampling station located to the south of the CNS axis. The dredge was conducted along the W-facing slope of an irregular elevation with a flat top at the southern flank of the CNS. Pillows and pillow fragments were obtained from water depths of 2,040 to 1,960 m b.s.l. In total 5 samples were collected, all of them contain fresh glass and appear quite similar, aphyric and microcrystalline with feldspar and olivine microphenocrysts (1 - 2%) and 7% vesicles.

DR 113 was set out along the S-facing slope of an E-W striking step in seafloor topography ~9 nm south of the CNS but failed to return samples.

DR 114, being located ~27 nm south of the ridge axis, is the southernmost sample location of this profile. The dredge haul was carried out from 2,290 to 2,049 m b.s.l. at steep scarp forming the southern boundary of a E-W striking elevated band (Fig. 5.22.). The dredge returned 1/3 filled with pillow and pillow fragments with thick manganese crusts and little fresh glass. Six samples were collected with two providing glass. The pillows and pillow fragments are aphyric with phenocrysts of <1 - 1% feldspar and 7% vesicles. DR 115 was conducted from 2,158 to 1,185 m b.s.l. at the NW-facing slope of an irregular shaped seamount on top of the elevated band. Seven pieces of basaltic pillow fragments and two pieces of manganese crusts were collected, five samples contain volcanic glass. The olivine-phyric pillow fragments are characterized by their dense and massive matrix with microphenocrysts of feldspar (20%) and olivine (2 - 3%).

DR 117 was deployed from 2,488 to 2,306 m b.s.l. along the N-facing slope of a basin-like, E-W trending depression ~12 nm south of the CNS axis (Fig. 5.22.). The dredge recovered mainly pillow fragments and some small pieces of sheet lava. Ten samples have been collected, two of them provide glass. The pillow fragments are microcrystalline with <1% feldspar-microphenocrysts, 1 - 3% pyroxene and 7 - 10% vesicles. The pieces of sheet lava are rather amorphous to glassy with no obvious microphenocrysts.

The last station in this profile (DR 118) was conducted from 2,520 to 2,263 m b.s.l. along the NW-facing flank of a small elevation near the edge of a ridge-like structure. Five samples of pillow fragments (two with volcanic glass) have been collected. The material appears quite homogeneous with 1 - 3% feldspar-, 1 - 3% pyroxene-, 1 - 3% olivine-microphenocrysts and 5 - 15% vesicularity. Additionally one aphyric, microcrystalline volcanic rock with a vesicularity of 2% has been sampled.

Profile 5 (DR 119 – DR 121)

Profile 5 is located between 00°38'N and 00°52'N and 88°14'W and 88°24'W and comprises one site to the south, one to the north and one to the east of a lava plateau, filling in the valley and ridge type morphology on this section of the CNS (Fig. 5.23.). These sites were selected since SO158 revealed an enriched geochemical anomaly of this lava plateau. Here the axial high morphology of the eastern CNS, i.e. low-amplitude valley-and-ridge-like structures on top of a broad ridge, terminates and passes into a distinct valley that is bounded by narrow ridges (Christie et al. 2005). The 3 sample locations on profile 5 yielded 33 samples with 28 samples containing fresh glass. Assuming to a spreading rate of 7cm/yr, the samples range in age from basically "zero" age (DR 121) to 165 ka (DR 120).

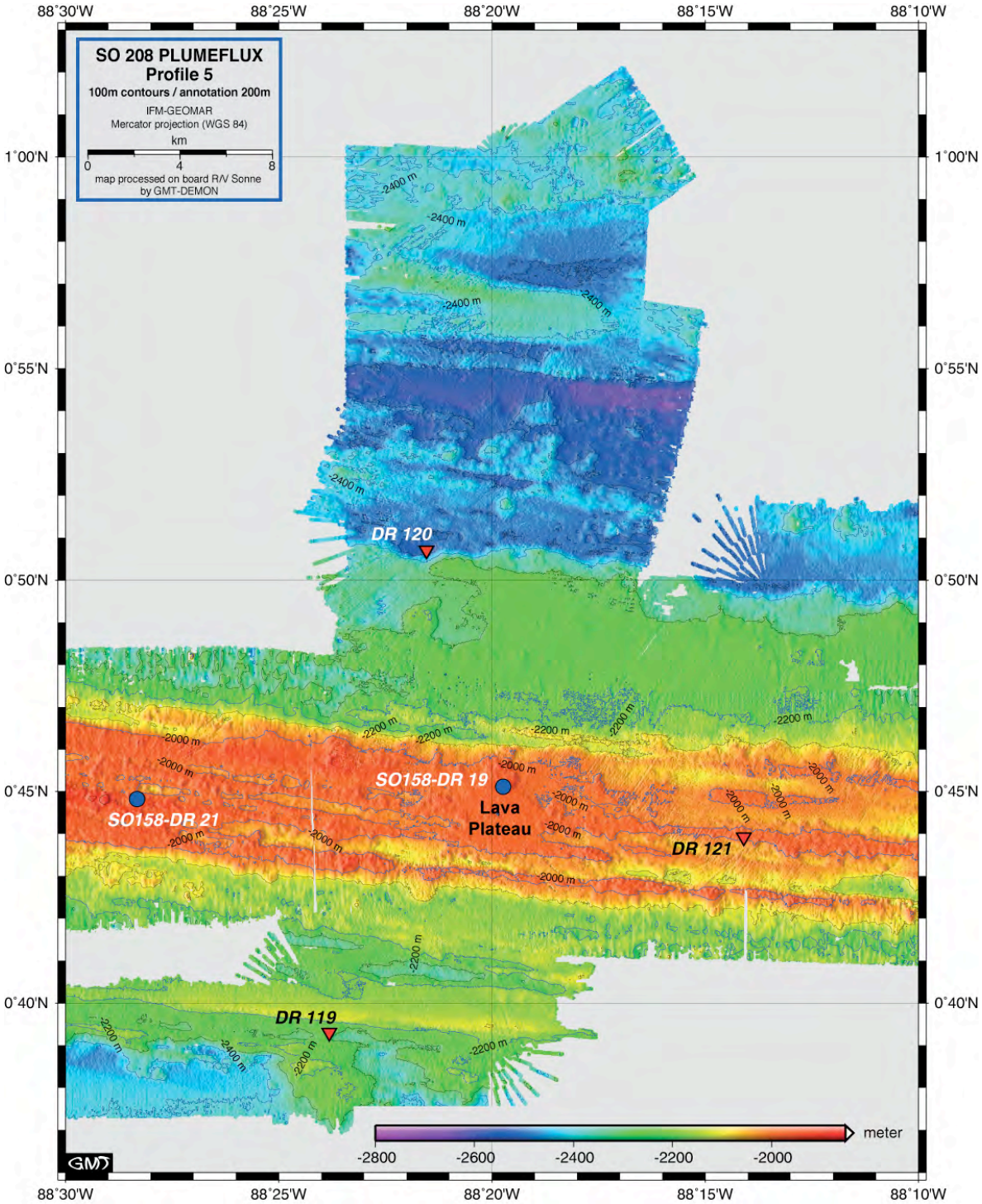

Fig. 5.23.: *Profile 5 in the area of a distinct, geochemically enriched lava plateau on the CNS axis at ~88°20´W. Symbols and data sources as in Fig. 5.19.*

DR 119 is located ~5 nm south of the CNS axis along an E-W striking, S-facing scarp. The dredge was deployed in water depths from 2,264 to 2,112 m b.s.l. and was filled to 100%. Twentyone collected samples include fragments of pillow and sheet lava, volcanic breccia, and hyaloclastite. The pillows are porphyric with 1% feldspar-phenocrysts and 2 - 7% vesicles. The sheet lava fragments are characterized by a glassy to cryptocrystalline matrix, 5% feldspar-microphenocrysts and 2 - 7% vesicles. Additionally microcrystalline lava pieces with 10% feldspar-microphenocrysts and 5% vesicles have been found. The volcaniclastic rocks are massive with a matrix formed by calcareous ooze and have glassy to cryptocrystalline clasts (see chapter 5.3.2.).

DR 120 was carried out ~7 nm north of the CNS along the NW-facing slope of an E-W striking plateau-like structure. The dredge (2,530 to 2,279 m b.s.l.) returned filled to one quarter with pillows. Moderately altered glass crusts are partly preserved on the pillows. In total 11 samples of quite similar aphanitic pillows were collected. Eight of them provide glass. The pillows have a massive texture with a glassy to microcrystalline matrix and contain 20% feldspar-(micro-)phenocrysts and 5 - 7% vesicles.

DR 121 was conducted from 1,966 to 1,970 m b.s.l directly along the central ridge axis. Five pillow fragments with fresh glass were collected. They are aphyric, massive and microcrystalline with 5% pyroxene, 5 - 10% feldspar and 2 - 3% vesicles.

On-axis seamount at 87°45´W (DR 122 and TVG 123)

The last and easternmost rock sampling stations of SO208 Leg 2 aimed to sample a ~200 m high on-axis seamount at 87°45°W which has been mapped during SO158. DR 122 has successfully been carried out from 2,145 to 1,931 m b.s.l. at the NW-flank of this “donut” shaped seamount. Sixteen samples have been collected comprising mainly sheet lava with fresh glass and some pillow fragments. The sheet lavas are aphyric and very cryptocrystalline. Microphenocrysts are not visible. The pillows have an aphyric texture and a crypto- to microcrystalline matrix with 1 - 2% feldspar, 1% pyroxene and <1% vesicles. TVG 123 was conducted along a profile extending across the central crater of this seamount from the northern to the southern crater rim. The TV-grab revealed ~100 m high, almost vertical crater walls and huge amounts of large lava blocks on the bottom of the crater but failed to return rock samples because of the extremly rough terrain.

Leg 2 sampling summary

SO208 Leg 2 has achieved its major goals although the original approach to sample cross–sections perpendicular to the CNS using the Rockdrill 2 technology could not be realized. Instead extensive dredging has been carried out along five profiles perpendicular to the ridge axis. Despite the relative smooth terrain and increasing sediment cover with increasing distance from the CNS, 60 (or 79%) of 76 dredge sites yielded volcanic rocks suitable for geochemical analyses, allowing us to conduct the research project PLUMEFLUX largely as originally planned.

SO208 Leg 2 retrieved a broad variety of volcanic rocks from various morphological features (ridges, seamounts, depressions, scarps etc.) along the individual profiles. The majority of the collected samples are pillows and pillow fragments which occur at all sampled morphological features but predominate in particular in valley and ridge type areas and at seamounts. Almost all containing feldspar- and pyroxene-microphenocrysts with varying abundance of <1% to up to 40%. Sheet lavas are the second most abundant lithology and seem to occur in particular in the areas of elevated bands and plateaus. This may indicate higher eruption rates during formation of the bands and plateaus compared to the morphological features mainly formed of pillows. Volcaniclastic and sedimentary rocks have been collected only in minor amounts.

One of the major goals of PLUMEFLUX is to determine whether the transport of plume material to the ridge happens in a rather pulsing or more continuous mode. On SO208 we developed a working hypothesis how to identify the variations in plume input into the CNS in the past based on the seafloor morphology. Depending on spreading rate and magma input either valley and ridge type structures (slow spreading, low magma input) or axial highs (fast/intermediate spreading, high magma input) will be formed at a spreading center. Presumably the valley and ridge type characteristics are the result of extension at the CNS,

where the Cocos and Nazca plates are pulled apart causing the formation of horst and graben structures, and represent low material input into the ridge system during their formation. The broad bands (axial highs) with overall higher elevation and diffuse morphology, on the other hand, could be explained by a high material input from the plume to the ridge. The morphological variations through time therefore may reflect spatially and temporally varying plume input into the ridge. Geochemical analysis of the recovered samples will allow us to evaluate the input of plume material through time and to test our working hypothesis based on the seafloor morphology. We will be able to determine
(1) if the valley and ridge structures have more MORB-type chemical compositions reflecting lower plume input into the ridge and
(2) if the broader bands have more enriched, Galápagos-type compositions, reflecting greater plume influence on the ridge.

The geochemistry will also allow us to assess to which extend the four distinct geochemical domains of the Galápagos Plume (e.g. Hoernle et al. 2000) have interacted with the CNS during the past ~800,000 years. In combination with age determinations it will be possible to evaluate variations in plume-ridge interaction through time.

5.3. VOLCANICLASTIC ROCKS *(D. Maicher)*

Dredging during cruise SO208 successfully retrieved volcaniclastic material from a variety of seafloor morphologies, which comprise peaked and donut-shaped seamounts and, less frequently, from the Cocos-Nazca Spreading Centre (CNS), a mid ocean spreading centre. The types of volcaniclastic deposits recovered include primary volcaniclastic and hyaloclastic as well as reworked epiclastic material. By grain size, the most common deposits are tuff and lapilli tuffs, while coarser deposits like tuff breccias are rare. The samples, generally 10 – 20 cm in diameter, are commonly rounded cobbles coated in ferromanganese crusts or slab-like shaped samples. Freshly broken surfaces, indicating that the sample has been broken off from an in situ location on the seafloor during dredging, are common.

5.3.1. Terminology

The term “volcaniclastic” in a broad sense encompasses deposits which contain clasts of volcanic origin (see also Fisher and Schmincke 1984). To describe and classify the rocks in more detail, the mechanisms of clast fragmentation, transport and deposition, inferred from the rocks’ textures, are considered. The approach taken in this chapter follows White and Houghton (2006) who introduce a non-genetic classification scheme closely following the sedimentological grain size divisions (ash up to 2 mm; lapilli 2 – 64 mm; blocks and bombs >64 mm). They distinguish *primary volcaniclastic* from reworked *epiclastic deposits*. Primary volcaniclastics are directly related to a volcanic eruptive event which forms the clasts during violent explosive eruptions or during passive effusion of lava and from which they are deposited without interim storage. Epiclastic deposits in contrast are formed by weathering and reworking of material by sediment gravity transport processes and are not directly related to any volcanic activity. This kind of deposits is given ordinary sedimentological terms with volcanogenic modifiers, e.g. basaltic coarse sandstone.

Critical features used to discern primary volcaniclastic from epiclastic deposits include componentry, clast shape and textural aspects such as sorting and sedimentary structures. The components are juvenile clasts, i.e. clasts derived from newly erupted magma as well as lithic clasts, i.e. older clasts derived from the country rock, sediment or biogenic debris, which are merely entrained during transport and deposition. Further distinguishing criteria are a monomict versus a polymict clast assemblage which gives an indication about post-eruptive componentry modification. Clast shapes are diagnostic for fragmentation processes as well as for transport processes, i.e. clast rounding.

The types of primary volcaniclastics expected to occur in a subaqueous environment are hyaloclastites, pyroclastic deposits and peperites. Hyaloclastites, including pillow and sheet lava flow breccias, are formed subaqueously during effusive volcanism when extruding magma or flowing lava is chilled and fragmented by thermal quenching in contact with water. Pyroclastic deposits are formed by explosive eruptive activity subaerially as well as subaqueously. Peperites form during shallow intrusion of magma into unconsolidated wet

sediment by fragmentation of magma or lava as it mingles with the debris; the deposit is generally *in situ* (Skilling et al. 2002).

5.3.2. PLUMEFLUX volcaniclastic deposits

SO208 recovered 62 volcaniclastic samples, which include two epiclastic deposits, a peperitic rock and primary hyaloclastic deposits, i.e. pillow and lava flow breccias as well as massive and bedded hyaloclastics. In the following, the rocks are illustrated by showing typical examples of each type of deposit.

Epiclastic volcanogenic deposits

The only two recovered epiclastics, DR 24-17 collected from a seamount ("Bend Fault Seamount") and DR 58-9 from a ridge segment off the CNS, are very similar. The clasts of volcanic heritage are sand- to pebble-sized and variably angular to rounded. The matrix consists of microorganisms like foraminifera and radiolarians and a fine micritic clay. Fig. 5.24. shows a volcanogenic conglomerate matrix-supported by a coherent carbonaceous clay. The clasts are up to 4 mm in size, angular and generally glassy. Common platy and elongate clast shapes indicate a clast origin by spalling off of lava flows. This specimen is interpreted to be formed by sediment gravity flow processes, for instance by slope failure where loose rubble from a lava flow was incorporated into the carbonaceous seafloor sediment.

Fig. 5.24.: *Epiclastic deposit DR 58-9: carbonaceous volcanogenic con-glomerate, note absence of bedding.*

Hyaloclastic pillow and sheet lava flow breccias

Almost half of the recovered volcaniclastic deposits during SO208 (26 of 62) are pillow or lava flow breccias (DR 1-5; DR 2-16, -17, -18; DR 11-1, DR 17-35X; DR 21-12, -13, -21; DR 22-1; DR 23-6; DR 24-13; DR 25-8; DR 30-11; DR 32-1; DR 33-1, -9; DR 36-1; DR 51-1; DR 38-1; DR 83-8, -9, -17X; DR 108-4, -9 and DR 119-21X). This type of deposit is characterized by their close genetic association with either pillows or sheet flow lava (Schmincke and Bednarz 1990).

Called "breccias", however the deposits are coarse as well as fine grained debris. They are formed by essentially non-explosive processes related to rapid aqueous cooling of magma. This process of quenching is accompanied by a volume decrease that leads to fragmentation of the glass (Batiza and White 2000). Clast formation is furthermore driven by the continued movement and jostling of the lava spalling off its outer chilled carapace. The particles created are glassy (=hyalo) and their shapes are angular blocky and small splinter-like. The fragmental material, generally monomict, is infilling crannies between pillows as well as morphologic irregularities of lava flows. An indicator for an *in situ* location are jigsaw fit textures of the clasts (Fig. 5.25a).

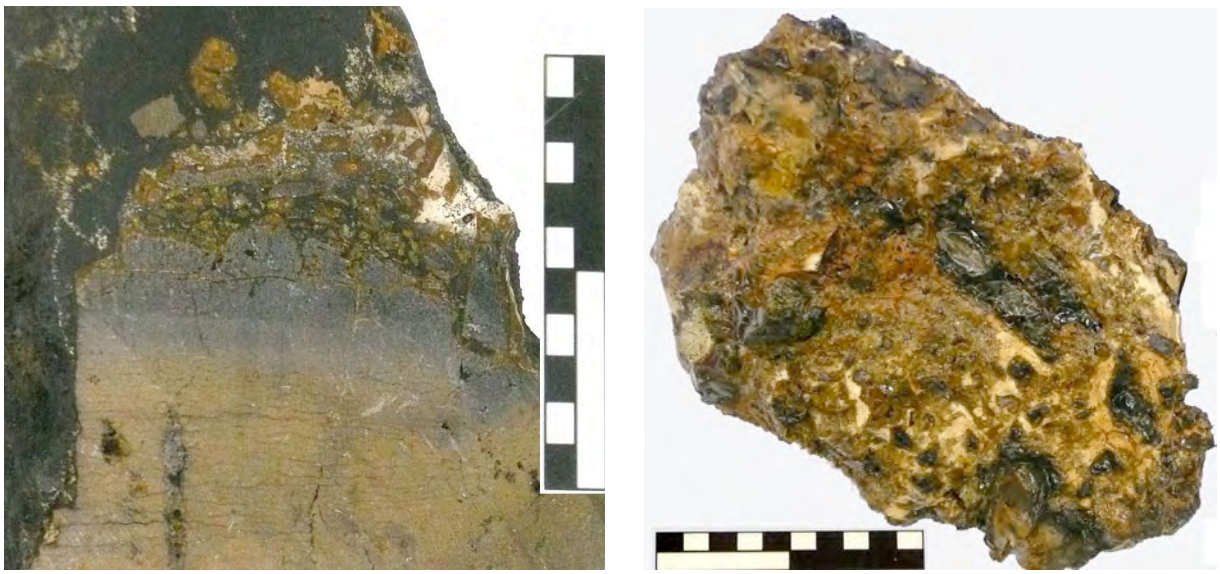

Fig. 5.25. (a): *DR 21-12, pillow with hyaloclastic rim; note pipe vesicle (lower left).* **(b)** *DR 38-1VC*, a massive lapilli tuff of irregular shaped glassy particles.

Fig. 5.25. shows the two types of lava breccias encountered. Very typical are pillow lavas with a rim of hyaloclastite. Example DR 21-12 shows an altered tan-coloured pillow lava with a dark grey glassy rim spalling off clasts. The hyaloclastic carapace is in situ as seen by the clasts' jigsaw fit texture. The specimen is thickly encrusted with ferromanganese. Less common are sheet lava breccias. Sample DR 38-1VC from seamount "Zecke" consists of irregular shaped, glassy clasts set in a tuffaceous fine grained matrix. The clasts are up to several cm in size and appear to be broken bits of a contorted lava sheet flow. This sample is admittedly similar to the epiclastic deposit shown in Fig. 5.24., however because of the predominance of large lava chunks it is here classified as a lava breccia.

Hyaloclastite, massive and bedded

Characterized by non- to poorly vesicular angular particles, both massive and bedded hyaloclastites, are ubiquitous volcaniclastic deposits in the deep sea. 19 of the recovered hyaloclastites are massive (DR 1-6; DR 2-9, -22; DR 17-13, -14, -15, -16; DR 24-14, -15, -16, 24X; DR 25-9, -10; DR 30-12; DR 32-9; DR 39-8 and DR 119-7, -8, -21X) and eight are bedded (DR 2-20, -21; DR 17-17, -18, -32 and DR 36-3, -4, -5). They are retrieved generally from seamounts and less frequently from the CNS.

Hyaloclastite emplacement is driven by gravitational processes, for instance as density currents forming blankets of sheet hyaloclastite (finer grained deposits) and granular debris flows (coarser grained deposits). The deposits form in direct response to continuing eruptions. The clasts are formed, as already described, during essentially non-explosive processes. Recent findings however question a purely passive quenching origin and invoke superimposed magmatic explosive processes and mild steam explosivity (e.g. White et al. 2003). SO208 recovered several specimens of limu-bearing hyaloclastite, a type of deposit for which controversial theories about the clast formation exist. Further study of the samples will hopefully contribute to this debate.

Fig. 5.26. shows examples of massive hyaloclastic deposits. DR 25-9VC is a fine grained, moderately to well sorted tuff composed of non-vesicular, angular to subangular clasts. A pervasive alteration of the small basaltic glass particles to palagonite gives the rock the typical yellow-orangy colour. DR 24-24X, retrieved from "Bend Fault Seamount", consists of a coarse grained massive, poorly sorted, closely packed lapilli tuff cemented with calcite. The clasts are randomly oriented, monomict and composed of a microcrystalline olivine-plagioclase-phyric basaltic lithology petrographically very similar to pillow lava dredged from the same seamount. The texture of the sample indicates a very limited transport from the site of origin.

Fig. 5.26. (a): *Massive, fine grained hyaloclastite DR 25-9VC.* ***(b)*** *DR 24-24X, a massive lapilli tuff.*

A typical example of a bedded hyaloclastite is shown in Fig. 5.27. The deposit is a faintly bedded tuff with aligned elongate clasts. The glassy clasts are monomict, poorly vesicular blocky and rare splinter- and irregular-shaped juveniles. Their deposition occurred most likely close to their site of formation from dilute density currents.

Fig. 5.27.: *Bedded hyaloclastite DR 17-18VC.*

Limu-bearing hyaloclastite

Some deposits contain a particular type of pyroclastic particles, so-called *limu o' Pele*, which we retrieved from seamounts at 3,100m water depth on average. Morphologically the clasts collected resemble shreds of a table tennis ball. They are gently curved (Fig. 5.28a) or wrinkled, very thin plates of sub-mm thickness and up to three cm in size (Fig. 5.28b). The shards consist of sideromelan (volcanic glass) and represent the outer skin of hollow magmatic bubbles. Two constrasting models attempt to explain the formation of limu in the deep sea, either by (a) seawater which is entrapped in the flowing lava and when heated expands blister-like the skin of the lava flow (Maicher et al. 2000, Maicher and White 2001), or by (b) exsolved volatiles, which accumulate beneath the surface of the magmatic body and similar to a Strombolian eruption expand dome-like hemispheres (Clague et al. 2000, Head and Wilson 2003).

Either way, both mechanisms indicate an *explosive* volcanic activity, where the explosivity however is strongly suppressed due to the high pressure of the overlying water column. Further indications for explosive volcanic activity are given by the presence of the donut-shaped, deeply cratered seamounts as well as the ocurence of highly versicular lava (e.g. Chapters 4. and 5.2.).

Fig. 5.28.: *Limu-bearing hyaloclastite;* **(a)** *DR 17-32VC with shiny, gently curved limu shards (view of the broken edge of the bedded deposit, looking from the basal side of the sample).*

(b) *DR17-32VC showing a wrinkled limu shard of almost 2 cm length.*

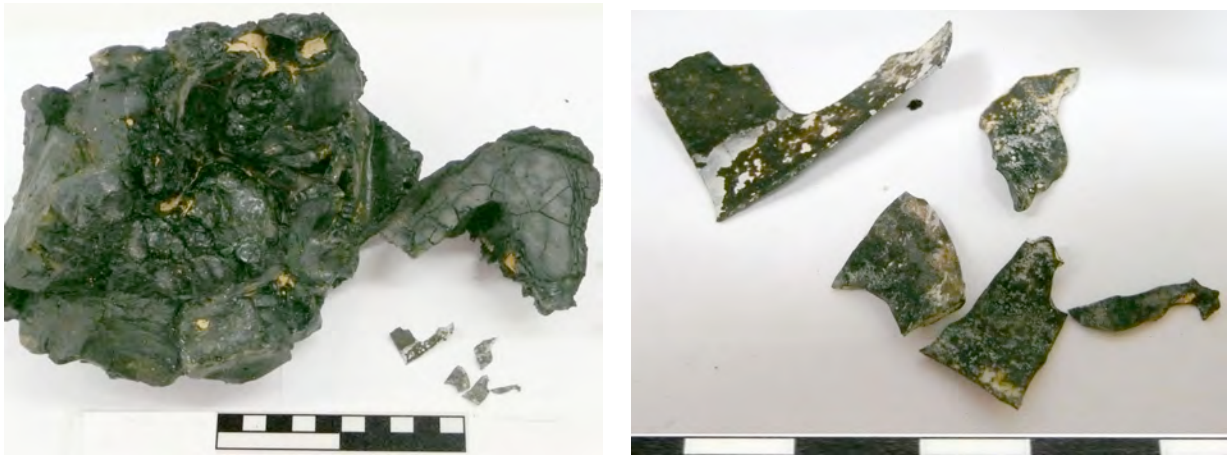

Fig. 5.29.: *DR 51-1* ***(a)*** *contorted glassy sheet lava forming vugs;* ***(b)*** *detail of (a) showing about 10 mm-sized limu-like shards found within vug filled with carbonaceous sediment.*

Support for the first theory, that limu shards are formed by water entrapped in lava, is seen in the contorted sheet lava samples dredged from many locations. Fig. 5.29a shows a glassy contorted sheet lava recovered from a site along a ridge segment parallel to the CNS. Highly

contorted and thoroughly glassy lava is folded into vugs, some of which enclose soft sediment. In one sediment pocket, limu-like shards are found (Fig. 5.29b).

Peperitic rocks

The single peperitic rock of cruise SO208 is reovered from seamount “Eye”, which also yielded the limu-bearing hyaloclastites. Fig. 5.30. shows a lava flow disintegrating into clasts towards the left of the picture. The clasts are, in contrast to hyaloclastite breccias (e.g. in Fig. 5.25.) of roundish shape and globular. Note the wavy sub-horizontal banding of the coherent lava, possibly due to shearing during lava flow. The deposit is possibly formed by intrusion of lava into a soft sediment and is thus interpreted as a peperite.

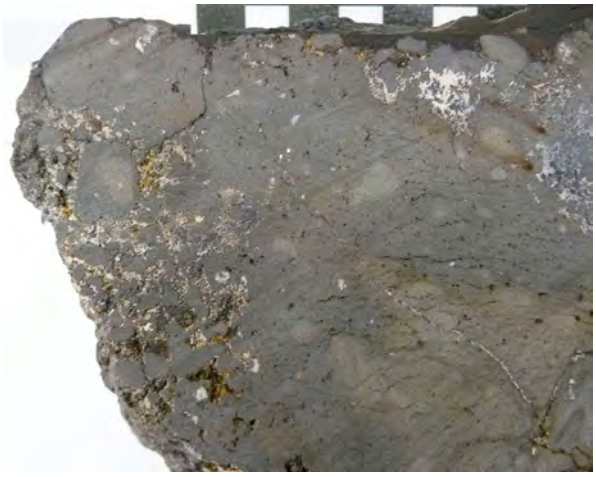

Fig. 5.30.: *DR 17-35X: massive lava flow disintegrating towards the left into a peperitic deposit.*

Miscellaneous rocks

Some enigmatic samples have been collected in dredge DR 26 from “Little Bend Fault Seamount”. Fig. 5.31a shows a grey basaltic pillow fragment with a dark glassy crust and a surface coating of sliver-like glassy clasts. The sliver are oriented parallel ot the pillow surface and further above, perpendicular to the pillow surface in a slighly V-shaped arrangment. The slivers are much larger than the usual splinter shaped clasts formed by cooling contraction spalling (as seen in Fig. 5.25.).

The slivers appear to be skin fragments of the cooled crust of the pillow, pushed up during growth and expansion of the pillow. Possibly, the surface of the pillow was somewhat insulated to avoid thermal shattering of the hot surface and instead allow for the formation of the large slivers. As for the vertical orientation of the slivers, it is imagined that the growing pillow moved and re-oriented the slivers into a confined space, like the typical triangular spaces between individual pillows.

Fig. 5.31.: *DR26* ***(a)*** *DR 26-1, cross section through a grey pillow with a brown coating of altered glassy slivers;* ***(b)*** *DR 26-6 a stack of slivers seen from above.*

6. SEDIMNETOLOGY

(E. Baldessin, P. Weber)

6.1. METHODS

6.1.1. Shipboard Collecting Procedures

Sedimentological material was collected by deployment of a TV-grab (TVG) and a TV-multicorer (TV-MUC, Fig. 6.1.), see biologist section for more details. As sufficient sediment was available, one tube of the TV-MUC could have been collected only for analysis of radiolaria. Moreover, the biologist research group of Dr. Carsten Lüter and Dr. Birger. Neuhaus provided centrifugal material from the sediment trap tubes, fixed in the dredges. The all tube, collected from the TV-MUC, was then sampled on centimeters layers (Fig. 6.1.). This procedure increases the chance, after identification of radiolarian assemblage from the smear slides, to get a precise correlation between species-depth-time. Sampling from the TVG was made directly on the deck. Couples of spoon from different parts of the mud were collected in jars then filled with alcool.

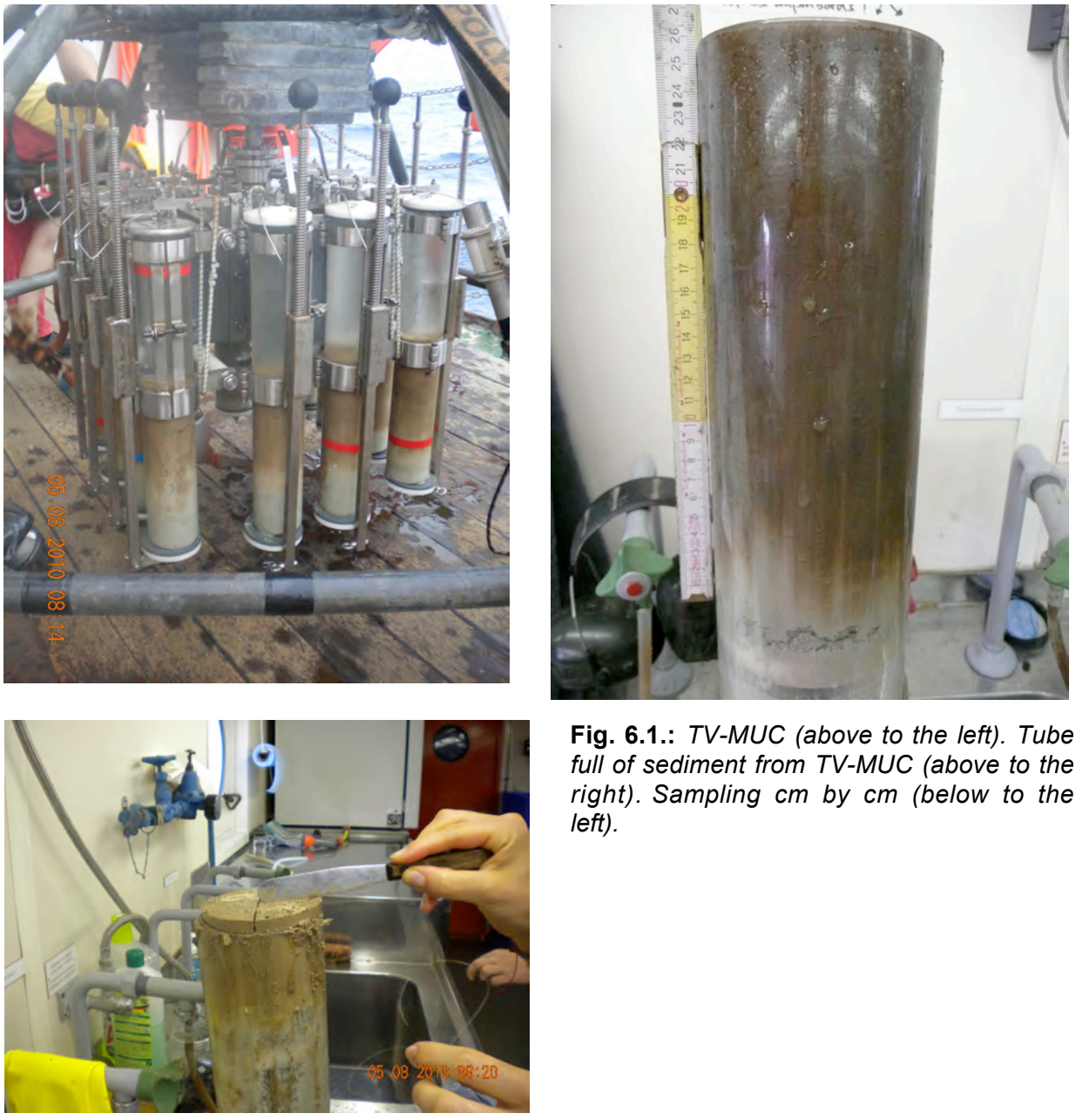

Fig. 6.1.: *TV-MUC (above to the left). Tube full of sediment from TV-MUC (above to the right). Sampling cm by cm (below to the left).*

6.1.2. Radiolaria

Once collected, sediment sampled, from all kind of device, was fixed in alcool and stored in the cold room in order to avoid the fermentation due to the organic matter present in the sediment. To extract radiolaria from soft sediment, HCl (at 10% strength) was added to the sediment in order to dissolve the carbonate present in the bulk sample. Then, elimination of organic matter was achieved by addiction of H_2O_2 (at 10% strength). The solution obtained was sieved with nylon sieves to retain the 60 – 1,000 µm fraction. Thus, only the siliceous fraction was collected and stored in seawater. Smear slides from this siliceous fraction were then made and the assemblage was analyzed under the optical microscope.

The same procedure was employed for the water sampled, except that the water was first sieved through the 60 µm sieve. Then HCl and H_20_2 were added on the solid fraction.

6.2. EXPECTED RESULTS

Every smear slide made onboard (as describe above) was then observed and analyzed under the microscope Zeiss Axioplan available in the laboratory. Radiolarian assemblages were identificated thanks to differents plates, mainly from *Ernst Haeckel (1887)* work (see Appendix III). Then, later on, the radiolarian assemblages of Leg 1 and 2 will have to be compared to the existing studies from the Californian Current (Casey), the Panama Basin (Honjo, Takagashi) and the south equatorial system (Molina-Cruz). Significant changes are expected in comparing Late Pleistocene and Recent assemblages. The end of the Pleistocene is usually detected by the sudden appearance of warm water species and/or by the disappearance of typical cold-water species from the assemblage. Besides, stable isotope and trace element studies on particular species may provide information about paleotemperatures of both surface and deepwater dwellers.

7. BIOLOGY

(N. Furchheim, C. Lüter, B. Neuhaus, R. Seidel)

7.1. METHODS

7.1.1. Shipboard Collecting Procedures

Biological material was collected by deployment of (1) a geological chain bag dredge, (2) a TV-grab (TVG) and (3) a TV-multicorer (TV-MUC). All boulders and rocks collected with the dredge were scanned for encrusting benthic invertebrates. Additionally, four sediment trap tubes (length: 21 cm, diameter: 4 cm) were fixed in the dredge to collect a disturbed sediment sample from each dredging site. Fifteen so-called biological stations were identified using maps of predicted bathymetry by Smith and Sandwell (1997) and Gebco data sets (eg., 'The GEBCO_08 Grid, version 20091120, http://www.gebco.net'), in order to collect undisturbed sediment samples and the inhabiting meiofaunal community with the TV-MUC. The sites were carefully chosen using PARASOUND and SIMRAD EM 120 profiling to avoid damaging the TV-MUC on hard grounds. The TV-camera of the TV-MUC allowed to check the sea floor for its soft nature. Additionally, the TVG's and TV-MUC's video-sequence capturing the way down to the sea bed and made macrofauna observation (planktonic and benthic) and collection possible. The TVG was also intended to be used for collecting boulders with encrusting macrofauna, but this was only feasable at three stations on the top of two seamounts and in the crater of a seamount. The video sequences recorded showed relatively rich planktonic and also benthic communities. All video sequences were recorded using two shipboard LG HDD/DVD recorders (b/w and colour) and subsequently burnt on DVDs for analysis of the sediment/rock structure and the nature of the recorded deep-sea plankton and benthos.

At almost all of the 15 MUC stations, O_2-concentration of the water trapped in one tube was measured with a multiparameter measuring device WTW Multi 340i immediately after recovery on deck. Within 12 hours, also pH and conductivity were taken from the sample and from 3 subsamples, respectively (Tab. 1.). Sensors used were WTW CellOx325, WTW SenTix 20 and WTW TetraCon 325. For comparison, the salinity and conductivity of the surface water were noticed at one station from the ship's sensors.

7.1.2. Meiofauna

Sediment sampled by the four sediment trap tubes inside the geological chain bag dredges was fixed immediately in cold 6% formaldehyde buffered with buffer tablets for haematology (Merck # 1.09468.10100, pH 7.2). After at least one day of fixation at 4 - 8° C, the sediment was washed carefully with plenty of tap water on a 40 µm-sieve and centrifuged (THERMO Heraeus Multifuge 3s) three times for 5 minutes with three to four times the amount of Levasil 200A/40% at 4,000 rpm in order to quantitatively extract the meiofauna. After rinsing with tap water on a 40 µm-sieve, specimens were stored in 75% ethanol. Sediment was sampled with the TV-MUC and TV-grab together with macrofaunal specimens whenever possible. The entire haul from the TV-MUC and TV-grab was carefully checked for additional macrofaunal organisms buried in deeper layers of the sediment. In each TV-grab, about 6 kg of near-surface sediment were fixed in cold 6% formaldehyde and processed as described above. From the TV-MUC, only the upper 5 cm of sediment in each core (inner core diameter: 9.5 cm) were taken. Samples were split into four portions, if enough sediment was sampled: Most of the sediment of the upper 5 cm layer was fixed in cold 6% formaldehyde. This material was later washed with tap water on a 40 µm-sieve, centrifuged for meiofauna and finally stored in 75% ethanol. About 100 g of sediment from the surface were dried on glass petri dishes in an oven at 50° C for about 2 - 4 days and stored in plastic bags for later analysis of TOCs (= total organic carbon), TC (total carbon) and grain size. If enough sediment was collected, about 1 kg of sediment from the upper 5 cm layer was additionally fixed in 1.5% formaldehyde plus 3.75% glutardialdehyde in 0.1 M cacodylate buffer for electron microscopy at 4 - 8° C for at least one day and processed as described above. If sufficient sediment was available, one tube was provided for analysis of foraminifera and radiolaria by Dr. Philippe Weber and Erika Baldessin (see chapter 6). Meiofaunal organisms were sorted on board R/V SONNE with a dissecting microscope Zeiss Stemi 2000.

7.1.3. Macrofauna

All macrofauna identifiable either by naked eye or under a dissecting scope in the geology lab onboard R/V SONNE was picked using clean scalpel blades and immediately fixed in 100% ethanol and/or 4% formalin. For identification of potential larvae-bearing females, all brachiopods were stored in cold seawater (on ice) and after immediate inspection under a dissecting scope they were also fixed in 100% ethanol or Bouin's fixative for histology. Specimens were sorted (phylum level) and separately stored in small vials.

7.2. PRELIMINARY RESULTS AND DISCUSSION

7.2.1. General Observations and Collecting Report

Salinity, pH, and conductivity agreed widely at all 13 MUC stations in the deep sea and the two stations on the continental shelf off Nicaragua (Tab. 1.). However, O_2-concentration was considerably lower at the latter two stations (Tab. 1.). Here, we noticed a significant amount of organic material in the sediment and plenty of algae which may explain the low oxygen concentration at the stations on the continental shelf.

Tab. 1.: Measurements of several parameters in water column trapped by multicorer tube.

station number	date	locality: depth	Salinity [‰]	pH			conductivity [$^{mS}/_{cm}$]			O_2-concentration [%]	O_2-concentration [$^{mg}/_{l}$]
				# 1	# 2	# 3	# 1	# 2	# 3		
Leg 1											
MUC 3	17.7.	deep-sea plain: 3,459 m	33.2	8.01	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
MUC 4	17.7.	top of seamount: 2,343 m	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
MUC 13	19.7.	top of seamount: 2,880 m	33.1	7.83	7.83	7.82	52.8	53.1	53.1	41.3	3.81
MUC 14	19.7.	deep-sea plain: 3,640 m	33.7	7.85	8.25 [1]	7.85	52.8	52.1	53.3	33.2	3.02
MUC 19	21.7.	top of seamount: 2,426 m	33.4	7.81	7.82	7.82	52.9	53.0	53.1	38.0	3.34
MUC 20	21.7.	deep-sea plain: 3,487 m	34.1	7.83	7.82	7.81	52.5	52.6	52.6	38.3	3.48
near MUC 20	23.7.	surface water [2]	33.19	n. a.	n. a.	n. a.	52.88	n. a.	n. a.	n. a.	n. a.
MUC 27	23.7.	shelf: 132 m	34.2	8.16	7.98	7.89	52.7	53.2	53.1	**5.4**	**0.42**
MUC 28	23.7.	shelf: 162 m	34.4	7.82	7.87	7.84	53.1	53.3	53.1	**5.1**	**0.39**
MUC 34	25.7.	top of seamount: 2,625 m	34.2	7.84	7.85	7.85	53.2	53.1	53.3	38.6	3.22
MUC 35	25.7.	deep-sea plain: 3,151 m	34.1	7.82	7.85	7.84	52.7	53.4	52.4	38.8	3.65
MUC 41	26.7.	deep-sea plain: 3,113 m	33.8	7.80	7.81	7.82	52.4	52.9	52.8	39.0	3.69
Leg 2											
MUC 42	5.8.	N of CNS 91° W: 2,418 m	33.5	7.79	7.78	7.79	52.8	52.9	53.0	35.9	3.32
MUC 93	20.8.	N of CNS 89° W: 2,296 m	33.1	7.87	7.89	7.89	53.1	53.1	53.0	26.0	2.42
MUC 116	24.8.	S of CNS 89° W: 2,252 m	33.7	7.80	7.81	7.80	52.1	52.5	52.7	25.6	2.36
MUC 124	26.8.	S of CNS 87° W: 2,490 m	33.1	7.75	7.77	7.78	52.1	52.3	52.2	26.0	2.45

[1] Deviation possibly caused by contamination during sample processing.
[2] Measured by sensors of R/V Sonne.

In agreement with previous expeditions to the Central American East Pacific (SO144-3, SO158) and the Southwest Pacific region around New Zealand (SO168), taxa dominating the benthic communities such as sponges, hydrozoans, bryozoans or brachiopods were abundant.

Macrofaunal organisms were recovered at 93 out of 124 collecting stations (78 geological dredges, 3 TVGs and 12 TV-MUCs); 37 stations revealed sediment samples (21 sediment traps, 2 TVGs and 14 TV-MUCs). During the cruise, a total of 8,598 meiofaunal organisms could be isolated from about 45 kg of sediment. For a detailed list of the collected taxa and the number of specimens per taxon see Appendix IV.

7.2.2. Meiofauna

The sediment samples from the dredge and biological stations revealed species from most marine invertebrate groups of the animal kingdom, and demonstrated the diversity of animal life on the seamounts and plains of the Central American East Pacific. During the cruise, samples from 37 of 124 hauls (geological dredge, TVG, TV-MUC) yielding sediment were pre-sorted for meiofauna, and 8,598 specimens of the meiofauna were isolated already. Further sorting in Berlin is expected to reveal many more specimens, since it is rather difficult to trace especially the smaller sized meiofauna groups such as Kinorhyncha, Loricifera, and Tardigrada with a stereo microscope at magnifications of 32x on board a moving ship.

Nematoda and Copepoda outnumbered by far all other meiofaunal groups followed by the Polychaeta and Tardigrada. Specimens of several other taxa have been recovered at far lower densities from the pre-sorted samples. Loricifera and Kinorhyncha (probably species of the genera *Echinoderes, Campyloderes, Condyloderes, Antygomonas* and *Pycnophyes*) were found regularly. The finding of probably all live history stages of Loricifera such as larva, postlarva, ghost larva and adult, many of them in the process of moulting, is especially thrilling, because this may allow reconstruction of the entire life cycle of at least a few species. The life cycle of Loricifera varies considerably among different species and is still not fully understood (Heiner 2008, Heiner and Kristensen 2009, Heiner and Neuhaus 2007). Especially thrilling was the finding of several larval and adult specimens of Priapulida at stations MUC 20, DR 25 and DR 33. Meiobenthic priapulids have not been recorded from the deep sea yet (Land 1970, Todaro and Shirley 2003).

Regularly, worm-like organisms were discovered but could not be identified with certainty under the stereo microscope. Probably, these animals belong to the Gastrotricha and Plathelminthes. Both groups are rarely reported from the deep sea (Gambi and Danovaro 2006, Higgins and Thiel 1988, Schewe 2001, Soltwedel et al. 2000).

The number of meiofaunal specimens found in the sediment samples on this cruise is due mainly to the four sediment traps mounted in each geological dredge revealing some 6 kg of sediment and to the extensive usage of the density centrifugation method. This latter technique is supposed to recover meiofaunal organisms quantitatively from any kind of sediment be it mud or deep-sea clay or sand (Higgins and Thiel 1988). The THERMO Heraeus Multifuge 3s with its large centrifugation volume of 4 x 600 ml (taking 4 x 150 ml of sediment at a time) allowed to process the enormous amount of about 45 kg of sediment on board of R/V SONNE in a reasonable amount of time.

7.2.3. Macrofauna

SO208 Leg 1 revealed many specimens of all three key groups (Porifera, Bryozoa, Brachiopoda), but also a plethora of cnidarian, annelid, mollusc and echinoderm species. Leg 1 covers an area north of Leg 2 and of previous expeditions (SO144, SO158) to the effect that we are now in a position to draw a picture of the deep-sea invertebrate fauna of the Central American East Pacific.

As expected from previous cruises, the brachiopod fauna during Leg 2 (around the Cocos-Nazca Spreading Center [CNS]) was highly diverse, mainly comprising small-sized cancellothyridoid genera like *Bathynanus, Nanacalathis, Eucalathis* and *Melvicalathis*. All these genera were also found during SO144 and SO158, but these specimens were all fixed in formalin, making them unsuitable for DNA sequencing. With the new samples preserved in alcohol we will be able to do both morphology and molecular systematics, which is especially helpful in *Eucalathis* due to the high interspecific similarity on the morphological level.

Additionally, we were very lucky to find at least 20 specimens of the depp-sea dwelling inarticulate species *Pelagodiscus atlanticus* (Discinoidea), a species missing from molecular analyses of the brachiopod phylogeny for a long time. It is the first time that a substantial amount of specimens is available for DNA extraction (see PLUMEFLUX application). The most spectacular finding was three specimens of a hitherto unidentified monoplacophoran mollusc. We knew that the Leg 1 cruise track touched the area, in which the first recent monoplacophoran, *Neopilina galatheae*, was discovered (Lemche 1957), but we could not seriously expect to find specimens of this “living fossil”. Although species indentification is still pending, it is clear that the specimens found belong to a different species. So far, only one monoplacophoran species, *Laevipilina hyalina*, revealed a reliable molecular data set for phylogenetic analysis (Wilson et al. 2010), supporting the “Serialia hypothesis” (Giribet et al. 2006). The latter proposes a sister group relationshhip between Monoplacophora and Polyplacophora leaving the traditional Conchifera (“molluscs with a single shell”) as a paraphyletic grouping. With our specimens found during the cruise, we will be able to test this hypothesis with molecular methods.

7.2.4. TV-Observation of the Sea Floor

Deployments of both TV-grab and TV-MUC revealed video tracks (i) from the surface to the seafloor and (ii) seafloor transects in suitable resolution for identification of taxa on a rather coarse, supraspecific level. We have not yet started video analysis, but taxon identification especially from the seafloor transects will certainly complement our undestanding of the benthic communities in the collecting area.

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APPENDICES:

I. Sampling Summary SO208 Leg 1 and 2

IIa. Rock Description Leg 1 (dredge station locations and rock sample descriptions)

IIb. Rock Description Leg 2 (dredge station locations and rock sample descriptions)

III. Sediment Sampling (station locations and radiolaria taxa)

IV. Biological Sampling (station locations and biological sample descriptions)

V. Overview Map (SO208 Leg 1 and 2 sampling sites)

Appendix I (Rock Sampling Summary)

Leg	Type	Stat.	Location (quoted names are working names)	total volume	Rock summary	on bottom lat °S	on bottom long °E	off bottom lat °S	off bottom long °E	depth (m) max	depth (m) min	Mag. rock	volc. glass	Volcani-clastic	Mn
1	DR	1	"Pancake" Seamount	few rocks	pillow fragments, volcaniclastic rocks	8,291	89,508	8,211	89,509	3224	2992	1	1	1	0
1	DR	2	"Half-Moon" Seamount	1/4 full	pillow fragments, volcaniclastic rocks, Mn crusts	8,472	89,765	8,465	89,769	2827	2350	1	0	1	1
1	MUC	3	deep sea plain	1 tube	soft sediment	8,181	90,701	8,181	90,116	3459	3459	0	0	0	0
1	MUC	4	unnamned seamount (top)	empty	failed due to crusts and technical problems	8,004	90,147	8,003	90,148	2319	1343	0	0	0	0
1	DR	5	unmaned cone at base of "Egg" Smt.	empty		7,830	90,426	7,826	90,428	3410	3099	0	0	0	0
1	DR	6	"Egg" Seamount	few rocks	pillow fragments	7,839	90,469	7,836	90,474	3096	2777	1	1	0	0
1	DR	7	"Boxer" Seamount	few rocks	pillow fragments	7,644	90,870	7,640	90,875	3398	2973	1	0	0	0
1	TVG	8	"Horse Shoe" Seamount	full	soft sediment, Mn-knolls	6,890	91,579	6,898	91,580	3195	3312	0	0	0	1
1	DR	9	"Horse Shoe" Seamount	few rocks	volcaniclastic fragmens, Mn-knolls	6,897	91,585	6,893	91,589	3288	3232	0	1	1	1
1	DR	10	"Krapfen" Seamount	empty	failed due typo (coordinates)	6,863	91,643	6,858	91,643	2567	3572	0	0	0	0
1	DR	11	"Donut" Seamount	few rocks	Mn-crusts with lava fragments	6,852	91,806	6,848	91,812	3520	3290	1	0	0	1
1	DR	12	"Embryo" Seamount	empty	dredge stucked at the beginning of the track	6,776	92,149	6,774	91,149	3499	3417	0	0	0	0
1	MUC	13	"Embryo" Seamount (top)	12 tubes	soft sediment	6,762	92,159	6,762	92,159	2878	2878	0	0	0	0
1	MUC	14	deep sea plain adjacent to "Embryo" Smt.	11 tubes	soft sediment	6,805	92,111	6,805	92,111	3639	3640	0	0	0	0
1	DR	15	"Spiegelei" Seamount	1/3 full	pillow fragments	7,947	91,470	7,940	91,471	3104	2783	1	1	0	0
1	DR	16	"Loser" Seamount	empty	dredge stucked at the beginning of the track	8,344	91,188	8,246	91,183	2591	2777	0	0	0	0
1	DR	17	"Eye" Seamount	full	pillow and sheet lava fragments, volcaniclastic rocks	8,753	90,723	8,741	90,726	2867	2406	1	1	1	0
1	DR	18	"Knob" Seamount	few rocks	Mn-crusts	8,580	90,277	8,577	90,280	3227	2850	0	0	0	1
1	MUC	19	"Eye" Seamoun (top)	empty	failed due to hard surface	8,722	90,736	8,722	90,736	2426	2426	0	0	0	0
1	MUC	20	deep sea plain adjacent to "Eye" Smt.	7 tubes	soft sediment	8,777	90,641	8,777	90,641	3488	3487	0	0	0	0
1	DR	21	"Pickel" Seamount	full	pillow fragments, volcaniclastic rocks	9,631	89,844	9,626	89,849	3329	3029	1	1	1	0
1	TVG	22	unnamed seamount	some rocks	pillow fragments, soft sediments	10,591	88,833	10,593	88,836	2634	2708	1	1	0	1
1	DR	23	"Bend fault" Seamount (off trench), slope	1/3 full	pillow fragments, volcaniclastic rocks	10,770	87,892	10,765	87,896	1838	1735	1	1	1	0
1	DR	24	"Bend fault" Seamount (off trench), top	full	pillow fragments, volcaniclastic rocks, Mn nodules	10,757	87,874	10,757	87,873	1702	1733	1	1	1	1
1	DR	25	"Bend fault" Seamount (off trench), base	1/5 full	pillow fragments, volcaniclastic rocks	10,791	87,841	10,786	87,847	2574	2220	1	1	1	0
1	DR	26	"Little Bend" Seamount (offf trench)	few rocks	pillow fragments	10,685	87,759	10,682	87,755	2995	2680	1	1	0	0
1	MUC	27	Shelf off southern Nicaragua	12 tubes	soft sediment	11,415	86,867	11,415	87,867	132	132	0	0	0	0
1	MUC	28	Shelf off southern Nicaragua	12 tubes	soft sediment	11,149	86,566	11,149	86,566	162	162	0	0	0	0
1	DR	29	"Schrippe" Seamount (off trench)	empty		10,424	87,245	10,419	87,247	3400	3109	0	0	0	0
1	DR	30	"Schrippe" Seamountt (off trench)	1/2 full	pillow fragments, volcaniclastic rocks	10,410	87,247	10,404	87,252	2848	2400	1	1	1	0
1	DR	31	"Ammonit" Seamount	1/3 full	pillow fragments, volcaniclastic rocks, Mn crusts	9,903	87,268	9,900	87,275	3038	2584	1	1	1	1
1	DR	32	Guardian Seamount	1/3 full	pillow fragments, volcaniclastic rocks, Mn nodules	9,641	87,675	9,635	87,671	2640	2095	1	1	1	1
1	DR	33	"Kringel" Seamount	few rocks	pillow fragments, volcaniclastic rocks, Mn crusts	9,408	87,840	9,406	87,840	2716	2576	1	1	1	1
1	MUC	34	"Bagel" Seamount (top)	10 tubes	soft sediment with some small Mn nodules	9,125	87,442	9,125	87,442	2655	2655	0	0	0	0
1	MUC	35	deep sea plain adjacent to "Bagel" Smt.	12 tubes	soft sediment	9,125	87,396	9,125	87,396	3151	3151	0	0	0	0
1	DR	36	"Bagel" Seamount	1/3 full	pillow fragments, volcaniclastic rocks, sediments, Mn	9,143	87,424	9,159	87,425	2882	2795	1	1	1	1
1	DR	37	"Ojo" Seamount	few rocks	pillow fragments	9,370	87,246	9,373	87,250	2654	2339	1	0	0	0
1	DR	38	"Zecke" Seamount	1/4 full	pillow fragments, volcaniclastic rocks	9,445	87,077	9,438	87,079	3002	2763	1	1	1	0

Appendix I (Rock Sampling Summary)

Leg	Type	Stat.	Location (quoted names are working names)	total volume	Rock summary	on bottom lat °S	on bottom long °E	off bottom lat °S	off bottom long °E	depth (m) max	depth (m) min	Mag. rock	volc. glass	Volcani-clastic	Mn
1	DR	39	"Hook" Seamount	1/2 full	pillow and sheet lava fragments, volcaniclastic rocks	9,138	86,936	9,131	86,939	2330	1917	1	1	1	1
1	DR	40	"Hook" Seamount	few rocks	pillow fragments, Mn nodules	9,154	86,919	9,154	86,921	2954	2874	1	0	0	1
1	MUC	41	deep sea plain adjacent to "Hook" Smt.	12 tubes	soft sediment	9,161	86,872	9,161	86,872	3118	3113	0	0	0	0
2	MUC	42	deep sea plain north of western GSC	12 tubes	soft sediment	2,330	91,318	2,330	91,318	2418	2418	0	0	0	0
2	TVG	43	CNS west, north of ridge axis	empty	not closed because of rough terrain	2,114	91,949	2,114	91,949	1675	1682	0	0	0	0
2	DR	44	CNS west, smt. on ridge axis	empty		2,110	91,947	2,109	91,949	1597	1609	0	0	0	0
2	DR	45	CNS west profile, smt. on ridge axis	few rocks	pillow fragments	2,108	91,946	2,105	91,949	1621	1622	1	1	0	0
2	DR	46	CNS west profile	one rock	pillow fragment	2,123	91,933	2,117	91,935	1844	1785	1	1	0	0
2	DR	47	CNS west profile	empty		2,128	91,952	2,125	91,953	1848	1810	0	0	0	0
2	DR	48	CNS west profile	few rocks	pillow fragments	2,145	91,949	2,137	91,951	2099	1869	1	1	0	0
2	DR	49	CNS west profile	few rocks	pillow fragments	2,135	91,895	2,138	91,897	1978	1825	1	1	0	0
2	DR	50	CNS west profile	1/2 full	pillow fragments	2,159	91,903	2,152	91,903	2125	2113	1	1	0	0
2	DR	51	CNS west profile	1/5 full	pillow and sheet lava fragments	2,164	91,914	2,157	91,912	2133	2099	1	1	0	0
2	DR	52	CNS west profile	empty		2,204	91,899	2,198	91,902	2281	2150	0	0	0	0
2	DR	53	CNS west profile	few rocks	pillow fragments	2,209	91,893	2,203	91,895	2442	2266	1	1	0	0
2	DR	54	CNS west profile	empty		2,188	91,896	2,182	91,899	2196	2179	0	0	0	0
2	DR	55	CNS west profile	few rocks	pillow fragment, foraminifera	2,180	91,885	2,172	91,885	2254	2101	1	1	0	0
2	DR	56	CNS west profile	few rocks	pillow fragments	2,161	91,911	2,161	91,911	2322	2171	1	1	0	0
2	DR	57	CNS west profile	1/5 full	pillow fragments	2,192	91,845	2,192	91,845	2433	2144	1	1	0	0
2	DR	58	CNS west profile	1/4 full	pillow and sheet lava fragments, sediments	2,176	91,943	2,176	91,943	2170	2185	1	1	0	0
2	DR	59	CNS west profile	empty		2,192	91,940	2,192	91,940	2234	2141	0	0	0	0
2	DR	60	CNS west profile	1/5 full	pillow fragments	2,214	91,939	2,202	91,940	2368	2155	1	1	0	0
2	DR	61	CNS west profile	1/5 full	pillow fragments	2,272	91,934	2,263	91,938	2456	2273	1	1	0	0
2	DR	62	CNS west profile	few rocks	pillow fragments	2,253	91,924	2,248	91,927	2316	2219	1	1	0	0
2	DR	63	CNS west profile ("Heiko Seamount")	few rocks	lava fragments	2,303	91,865	2,309	91,859	2357	2159	1	0	0	0
2	DR	64	CNS west profile ("Heike Seamount")	empty		2,304	91,845	2,309	91,840	2349	2177	0	0	0	0
2	DR	65	CNS west profile	empty		2,328	91,844	2,332	91,842	2408	2347	0	0	0	0
2	DR	66	CNS west profile	1/5 full	pillow fragments, "glass block"	2,318	91,931	2,325	91,929	2448	2342	1	1	0	0
2	DR	67	CNS west profile	1/3 full	pillow fragments	2,414	91,831	2,420	91,830	2571	2370	1	1	0	0
2	DR	68	CNS west profile	one rock	pillow fragment	2,399	91,888	2,405	91,552	2462	2319	1	0	0	0
2	DR	69	CNS west profile	1/5 full	pillow fragments	2,314	91,713	2,318	91,708	2411	2278	1	1	0	0
2	TVG	70	CNS west profile	full	few small lava fragments, sediments	2,300	91,736	2,297	91,739	2168	2307	1	0	0	0
2	DR	71	CMS west profile ("Elly" Seamount")	empty		2,306	91,737	2,300	91,738	2377	2182	0	0	0	0
2	DR	72	CNS west profile	few rocks	pillow and sheet lava fragments	2,285	91,667	2,282	91,671	2475	2287	1	1	0	0
2	DR	73	CNS west profile	few rocks	pillow fragments	2,459	91,812	2,455	91,815	2466	2347	1	1	0	0
2	DR	74	CNS west profile	few rocks	pillow fragments	2,536	91,796	2,528	91,798	2579	2405	1	1	0	0
2	DR	75	91°Transform profile	full	pillow and sheet lava fragments	0,994	90,611	0,989	90,614	1612	1490	1	1	0	0
2	DR	76	91°Transform profile	1/4 full	pillow and sheet lava fragments	1,048	90,705	1,044	90,409	1937	1744	1	1	0	0
2	DR	77	91°Transform profile	1/5 full	pillow fragments	1,094	90,704	1,091	90,707	2067	1871	1	1	0	0

Appendix I (Rock Sampling Summary)

Leg	Type	Stat.	Location (quoted names are working names)	total volume	Rock summary	on bottom lat °S	on bottom long °E	off bottom lat °S	off bottom long °E	depth (m) max	depth (m) min	Mag. rock	volc. glass	Volcani-clastic	Mn
2	DR	78	91°Transform profile	few rocks	pillow fragments	1,029	90,637	1,023	90,640	1793	1592	1	0	0	0
2	DR	79	91°Transform profile	1/3 full	pillow and sheet lava fragments	0,947	90,552	0,943	90,553	1599	1516	1	1	0	0
2	DR	80	91°Transform profile	1/4 full	pillow and sheet lava fragments	0,924	90,400	0,920	90,399	1560	1515	1	1	0	0
2	DR	81	91°Transform profile	few rocks	pillow fragments	0,925	90,406	0,924	90,402	1558	1569	1	1	0	0
2	DR	82	91°Transform profile	1/3 full	pillow fragments	1,044	90,216	1,047	90,197	2404	2221	1	1	0	0
2	DR	83	91°Transform profile	1/3 full	pillow and sheet lava fragments, volcaniclastic rocks	1,021	90,203	1,025	90,193	2285	2081	1	1	1	0
2	DR	84	91°Transform profile	1/3 full	pillow fragments	0,981	90,293	0,985	90,289	2121	1994	1	1	0	0
2	DR	85	"Split Seamount" profile (89°30´W)	empty		0,827	89,528	0,832	89,525	1645	1706	0	0	0	0
2	DR	86	"Split Seamount" profile (89°30´W)	empty		0,879	89,556	0,875	89,553	2137	2083	0	0	0	0
2	DR	87	"Split Seamount" profile (89°30´W)	1/5 full	sheet lava fragments	0,846	89,531	0,838	89,531	1958	1674	1	1	0	0
2	DR	88	"Split Seamount" profile (89°30´W)	two rocks	pillow and sheet lava fragment	0,901	89,583	0,896	89,579	2244	2095	1	1	0	0
2	DR	89	"Split Seamount" profile (89°30´W)	few rocks	pillow fragments	0,890	89,481	0,884	89,479	2185	2056	1	1	0	0
2	DR	90	"Split Seamount" profile (89°30´W)	few rocks	pillow fragments	0,899	89,465	0,893	89,467	2296	2136	1	1	0	0
2	DR	91	"Split Seamount" profile (89°30´W)	few rocks	lava fragments	0,920	89,486	0,923	89,482	2214	2115	1	1	0	0
2	DR	92	"Split Seamount" profile (89°30´W)	few rocks	lava fragments	0,961	89,482	0,959	89,480	2373	2325	1	0	0	0
2	MUC	93	"Split Seamount" profile (89°30´W)	12 tubes	soft sediment	0,973	89,482	0,973	89,482	2291	2296	0	0	0	0
2	DR	94	"Split Seamount" profile (89°30´W)	empty		1,038	89,525	1,035	89,525	2295	2203	0	0	0	0
2	DR	95	"Split Seamount" profile (89°30´W)	empty		1,055	89,469	1,050	89,467	2404	2265	0	0	0	0
2	DR	96	"Split Seamount" profile (89°30´W)	two rocks	pillow fragments	1,059	89,506	1,055	89,503	2378	2280	1	0	0	0
2	DR	97	"Split Seamount" profile (89°30´W)	few rocks	Mn-crusts and sediment	1,098	89,501	1,093	89,500	2314	2213	0	0	0	1
2	DR	98	"Split Seamount" profile (89°30´W)	few rocks	pillow fragments, Mn-crusts	1,257	89,501	1,253	89,499	2263	2165	1	1	0	1
2	DR	99	89°10´W profile-north	few rocks	pillow fragments	0,790	89,240	0,790	89,237	1730	1734	1	1	0	0
2	DR	100	89°10´W profile-north	1/5 full	hydrothermal deposits	0,796	89,242	0,784	89,236	1715	1720	1	0	0	0
2	DR	101	89°10´W profile-north	2/3 full	pillow and sheet lava fragments	0,808	89,078	0,804	89,074	1770	1762	1	1	0	0
2	DR	102	89°10´W profile-north	few rocks	sedimentary rocks	1,595	89,088	1,590	89,084	2513	2322	0	0	0	0
2	DR	103	89°10´W profile-north	empty		1,584	89,091	1,589	89,086	2495	2314	0	0	0	0
2	DR	104	89°10´W profile-north	few rocks	volcaniclastic rocks	1,569	89,076	1,562	89,076	2537	2355	0	0	1	0
2	DR	105	89°10´W profile-north	1/5 full	pillow fragments	1,317	89,152	1,308	89,148	2290	2188	1	1	0	0
2	DR	106	89°10´W profile-north	few rocks	pillow fragments, Mn-crusts	1,255	89,223	0,251	89,221	2448	2200	1	0	0	1
2	DR	107	89°10´W profile-north	1/2 full	pillow fragments, Mn-crusts	1,076	89,103	1,081	89,096	2320	2163	1	1	0	1
2	DR	108	89°10´W profile-north	1/5 full	pillow and sheet lava fragments, volcaniclastic rocks	1,007	89,124	1,011	89,119	2400	2248	1	1	1	0
2	DR	109	89°10´W profile-north	empty	one sea star	0,958	89,168	0,953	89,164	2439	2253	0	0	0	0
2	DR	110	89°10´W profile-north	few rocks	pillow fragments	0,921	89,112	0,912	89,112	2232	2020	1	1	0	0
2	DR	111	89°10´W profile-south	two rocks	sheet lava fragments	0,826	89,121	0,823	89,115	1872	1788	1	1	0	0
2	DR	112	89°10´W profile-south	few rocks	pillow fragments	0,756	89,142	0,756	89,137	2040	1960	1	1	0	0
2	DR	113	89°10´W profile-south	empty		0,652	89,182	0,656	89,177	2446	2295	0	0	0	0
2	DR	114	89°10´W profile-south	1/3 full	pillow fragments	0,367	89,131	0,373	89,125	2290	2049	1	1	0	1
2	DR	115	89°10´W profile-south	1/5 full	pillow fragments, Mn-crusts	0,406	89,132	0,400	89,127	2158	1815	1	1	0	1
2	MUC	116	abyssal plain south of CNS	full	soft sediment	0,429	89,038	0,429	89,038	2256	2252	0	0	0	0

Appendix I (Rock Sampling Summary)

Leg	Type	Stat.	Location (quoted names are working names)	total volume	Rock summary	on bottom lat °S	on bottom long °E	off bottom lat °S	off bottom long °E	depth (m) max	depth (m) min	Mag. rock	volc. glass	Volcani-clastic	Mn
2	DR	117	EW-depression ~20 km south of GSC	few rocks	pillow and sheet lava fragments	0,620	89,026	0,610	89,023	2488	2306	1	1	0	0
2	DR	118	Elevation ~20 km south of GSC	1/5 full	pillow fragments	0,654	89,018	0,649	89,015	2520	2263	1	1	0	0
2	DR	119	South of CNS at 88°23´W	full	pillow and sheet lava fragments	0,655	88,397	0,662	88,393	2264	2112	1	1	0	0
2	DR	120	North of GSC at SO158 DR19	1/4 full	pillow fragments	0,845	88,359	0,839	88,354	2530	2279	1	1	0	0
2	DR	121	Spreading axis of CNS	few rocks	pillow fragments	0,732	88,235	0,732	88,228	1966	1970	1	1	0	0
2	DR	122	Axial Seamount at 87°45´W	1/5 full	pillow and sheet lava fragments	0,728	87,761	0,727	87,756	2145	1931	1	1	0	0
2	TVG	123	Axial Seamount at 87°45´W	empty	not closed because of rough terrain	0,724	87,754	0,716	87,754	1964	1913	0	0	0	0
2	MUC	124	South of CNS	full	soft sediment	0,609	87,528	0,609	87,528	2494	2490	0	0	0	0
												81	**69**	**18**	**19**

Dredge Stations (DR): 104
TV-Grab Stations (TVG): 5
TV-Multicorer Stations (MUC): 15
EM120 and PARASOUND surveys: 4889 nm

Appendix IIa (Rock Description Leg 1)

SO208 DR1
Description of Location and Structure: "Pancake" Smnt, flat circle shaped smnt, may have small cone on top, very gentle dipping flanks

Dredge on bottom UTC 17/07/10 5:57hrs, lat 08°13,15'N, long 89°30,47'W, depth 3224m

Dredge off bottom UTC 17/07/10 07:05hrs, lat 8°12,67'N, long 89°30,54'W, depth 2992m

total volume: few rocks

Comments: pillow basalt with glass rims (possibly fresh), pillow fragments without glass but abundant low T alteration halos

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR1-1	1. Rock Type: volcanic pillow fragment, slightly to medium altered 2. Size: 24x17x13 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey with dark grey alteration halo along cracks 5. Texture / Vesicularity: aphyric, dense 6. Phenocrysts: plag microphenocrysts, 0.5mm-1mm, <2%, fresh; Ol <3mm, some fresh some altered, <1% 7. Matrix: very fine grained fsp-px gm 8. Secondary Minerals: Ol sometimes altered to iddingsite, Fe Hydroxide along 3mm wide cracks and veins 9. Encrustations: Mn coating, partly 1mm thick Mn crust 10. Comment: This sample is the most abundant rock type of this dredge: a near aphyric pillow basalt. Some samples have glassy chilled margins preserved.	x	x	2-3 gm-Fsp				
SO208 DR1-2	1. Rock Type: very similar to #1 2. Size: 25x16x12 3. Shape / Angularity: subangular 4. Color of cut surface: dry. Light grey with dark alteration halo along cracks 5. Texture / Vesicularity: aphyric, dense 6. Phenocrysts: plag: microphenocrysts, 0.5mm-1mm, <2%, fresh; Ol: <3mm, some fresh some altered, <1% 7. Matrix: very fine grained fsp-px gm 8. Secondary Minerals: Ol sometimes altered to iddingsite, Fe-Hydroxide along 3mm wide cracks and veins 9. Encrustations: Mn coating, partly 1mm thick Mn crust 10. Comment: may contain slightly more fsp and Ol	x	x	3-4 gm-fsp				
SO208 DR1-3	1. Rock Type: pillow fragment similar to sample DR1-1 2. Size: 15x12x7 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey but with 8mm alteration halo along margin of the piece 5. Texture / Vesicularity: aphyric, dense 6. Phenocrysts: monopheoncrysts, 0.5mm-1mm, <2%, fresh; Ol: <3mm, some fresh some altered, <1% 7. Matrix: very fine grained fsp-px gm 8. Secondary Minerals: Ol sometimes altered to iddingsite, Fe-Hydroxide along 3mm wide cracks and veins 9. Encrustations: Mn coating, partly 1mm thick Mn crust 10. Comment: taken as backup sample							
SO208 DR1-4	1. Rock Type: pillow fragment similar to sample #1 2. Size: 16x14x11 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey but with 8mm alteration halo along margin of the piece 5. Texture / Vesicularity: aphyric, dense 6. Phenocrysts: monopheoncrysts, 0.5mm-1mm, <2%, fresh; Ol: <3mm, some fresh some altered, <1% 7. Matrix: very fine grained fsp-px gm 8. Secondary Minerals: Ol sometimes altered to Iddingite, Fe-Hydroxide along 3mm wide cracks and veins 9. Encrustations: Mn coating, partly 1mm thick Mn crust 10. Comment: taken as backup sample							
SO208 DR1-5	1. Rock Type: volcaniclastic, strongly altered, palagonite formation 2. Size: 15x13x8 3. Shape / Angularity: round-subangular 4. Color of cut surface: dry: dark grey-black rim, palagonite crust, taned core 5. Texture / Vesicularity: porphyric, 30% vesicle filling 6. Phenocrysts: fsp: 0,5mm-2mm, >40%, fresh partly altered 7. Matrix: fine grained with fsp-gm 8. Secondary Minerals: 2nd min. and Fe-Hydroxid replacement 9. Encrustations: Mn crust <3mm 10. Comment: strongly zoned rock by alteration, vugs filled with sediment/minerals, high amounts of fsp in gm, altered rim with a mixture of palagonite-glass and Mn crust and poss. sediment.	x		1-2 fsp-gm				
SO208 DR1-6	1. Rock Type: sediment 2. Size: 8x6x4 3. Shape / Angularity: rounded 4. Color of cut surface: dry: green/yellow/brownnish 5. Texture / Vesicularity: coarse grained, 5% vesicles 6. Phenocrysts: fsp: highly altered, welded 8. Secondary Minerals: 2nd min. alteration products, Fe-Hydroxide 10. Comment: sediment, graines are welde, incorporate pieces of basalt, palagonite							
SO208 DR1-7	1. Rock Type: pillow fragment, slightly to medium altered 2. Size: 30x20x20 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey with dark grey alteration halo along cracks 5. Texture / Vesicularity: aphyric, dense 6. Phenocrysts: plag microphenocrysts, 0.5mm-1mm, <2%, fresh; Ol <3mm, some fresh some altered, <1% 7. Matrix: very fine grained fsp-px gm 8. Secondary Minerals: Ol sometimes altered to iddingsite, Fe Hydroxide along 3mm wide cracks and veins 9. Encrustations: Mn coating, partly 1mm thick Mn crust 10. Comment: pillow with glass rim, partly palagonized	x	x					

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR1-8	1. Rock Type: volcanic pillow fragment, slightly to medium altered 2. Size: 30x25x19 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey with 10mmcdark grey alteration halo along margin 5. Texture / Vesicularity: aphyric, dense 6. Phenocrysts: plag microphenocrysts, 0.5mm-1mm, <2%, fresh; Ol <3mm, some fresh some altered, <1% 7. Matrix: very fine grained fsp-px gm 8. Secondary Minerals: Ol sometimes altered to iddingsite, Fe Hydroxide along 3mm wide cracks and veins 9. Encrustations: Mn coating, partly 1mm thick Mn crust 10. Comment: pillow with glass rim, partly palagonized	x						
SO208 DR1-9-X	1. Rock Type: volcanic pillow fragment, slightly to medium altered 2. Size: 14x10x8,5 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey with 10mm dark grey alteration halo along margin 5. Texture / Vesicularity: aphyric, dense 6. Phenocrysts: plag microphenocrysts, 0.5mm-1mm, <2%, fresh; Ol <3mm, some fresh some altered, <1% 7. Matrix: very fine grained fsp-px gm 8. Secondary Minerals: Ol sometimes altered to iddingsite, Fe Hydroxide along 3mm wide cracks and veins 9. Encrustations: Mn coating, partly 1mm thick Mn crust 10. Comment: pillow with glass rim, partly palagonized						archive	
SO208 DR1-10-X	1. Rock Type: volcanic pillow fragment, slightly to medium altered 2. Size: 30x25x19 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey with alteration halo along margin and cracks and veins 5. Texture / Vesicularity: aphyric, dense 6. Phenocrysts: plag microphenocrysts, 0.5mm-1mm, <2%, fresh; Ol <3mm, some fresh some altered, <1% 7. Matrix: very fine grained fsp-px gm 8. Secondary Minerals: Ol sometimes altered to iddingsite, Fe Hydroxide along 3mm wide cracks and veins 9. Encrustations: Mn coating, partly 1mm thick Mn crust 10. Comment: pillow with glass rim, partly palagonized						archive	
SO208 DR1-11-X	1. Rock Type: volcanic pillow fragment, slightly to medium altered 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey with alteration halo along margin and cracks and veins 5. Texture / Vesicularity: aphyric, dense 6. Phenocrysts: plag microphenocrysts, 0.5mm-1mm, <2%, fresh; Ol <3mm, some fresh some altered, <1% 7. Matrix: very fine grained fsp-px gm 8. Secondary Minerals: Ol sometimes altered to iddingsite, Fe Hydroxide along 3mm wide cracks and veins 9. Encrustations: Mn coating, partly 1mm thick Mn crust 10. Comment: pillow with glass rim, partly palagonized						archive	

SO208 DR2
Description of Location and Structure: "Half-Moon" Smnt, ca 20nm NW of "Pan Cake", cirular shaped smnt, half circle shaped, ridge along the E-side

Dredge on bottom UTC 17/07/10 12:05hrs, lat 08°28,31'N, long 89°45,88'W, depth 2827m

Dredge off bottom UTC 17/07/10 13:17hrs, lat 8°27,92'N, long 89°46,15'W, depth 2350m

total volume: 1/4 full

Comments: pillow fragments, lava flow peices, volcaniclastic rocks poss. with glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR2-1	1. Rock Type: basaltic lava fragment, fresh 2. Size: 36x22x15 3. Shape / Angularity: angular 4. Color of cut surface: dark grey 5. Texture / Vesicularity: massive, micro-crystalline and flow textures, 4% vesicals, some filled prob. with CC 6. Phenocrysts: plagioclase is needle like, submillimeter , 10%; pyroxene, submillimeter to mm, blocky, 4% well preserved 7. Matrix: very fine grained fsp in gm 8. Secondary Minerals: some vesicles are filled with second. mineral. 9. Encrustations: partially encrusted with Mn 4.5cm at thickest 10. Comment: suitable for dating, light oxidized at cracks and away from cracks	x	x	2 gm-fsp				
SO208 DR2-2	1. Rock Type: pillow basalt, volcanic, fresh 2. Size: 14x11x8 3. Shape / Angularity: subangular 4. Color of cut surface: dark and light grey 5. Texture / Vesicularity: massive, crystalline, <1% vesicles 6. Phenocrysts: plagioclase is needele like, less 1%Ol, very altered, oxidized, submm to mm 20% 7. Matrix: microcrystalline, slighthly oxidized 8. Secondary Minerals: no secondary mineralization but oxidation of plagioclase 9. Encrustations: <1mm Mn 10. Comment: suitable for dating	x	x	2				

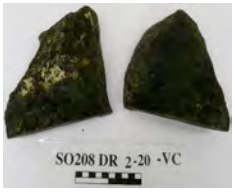
Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR2-3	1. Rock Type: pillow basalt, slightly altered 2. Size: 20x16x1.3 3. Shape / Angularity: sub angular 4. Color of cut surface: light grey, dark grey, tan 5. Texture / Vesicularity: massive, 5% vesicular, 40% filled with second. mineralization 6. Phenocrysts: plag 40%, submm, range from fresh to oxidized, needle like, pyx 20%, submm-mm, mostly well presevered, blocky 7. Matrix: microcrystalline, pyx and plag rich 8. Secondary Minerals: some 2nd min due ti oxidation of Plag and Pyx 9. Encrustations: <1mm Mn 10. Comment: ok to date	x	x	3				
SO208 DR2-4	1. Rock Type: pillow basalt, altered, poikilitic 2. Size: 32x26x18 3. Shape / Angularity: angular to subangular 4. Color of cut surface: light grey, dark grey tan 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: plag 3% fresh to altered, mm to submm, tabular, pyx 1% fresh, mm to submm, blocky 7. Matrix: microycrystalline, Plag, Pyx 8. Secondary Minerals: similar to #3 9. Encrustations: <1mm Mn	x	x	3				
SO208 DR2-5	1. Rock Type: pillow basalt, partially oxidized, hydrothermal alteration 2. Size: 16x9x9 3. Shape / Angularity: subangular 4. Color of cut surface: light grey, dark grey, tan 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: plag, needle like, 40%, altered, submm, in altered section; pyx, 20% fresh, submm, blocky, in fresh and altered sections 7. Matrix: microycrystalline, Plag, Pyx 8. Secondary Minerals: 2nd min in cracks, Plag altered to different min (?) 9. Encrustations: <1mm Mn	x	x	3-4				
SO208 DR2-6	1. Rock Type: pillow basalt, partially oxidized, hydrothermal alteration 2. Size: 16x9x9 3. Shape / Angularity: subangular 4. Color of cut surface: light grey, dark grey, tan 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: plag, needle like, 40%, altered, submm,in altered section; pyx, 20% fresh, submm, blocky, in fresh and altered sections 7. Matrix: microycrystalline, Plag, Pyx 8. Secondary Minerals: 2nd min in cracks, Plag altered to different min (?) 9. Encrustations: <1mm Mn	x	x	2-4				
SO208 DR2-7	1. Rock Type: pillow basalt, partially oxidized, hydrothermal alteration 2. Size: 11x8x6 3. Shape / Angularity: subangular 4. Color of cut surface: light grey, dark grey, tan 5. Texture / Vesicularity: massive, <1% vesicles, 50% filled 6. Phenocrysts: plag, needle like, platey, 20%, fresh to altered, submm; pyx, 18% fresh, submm, blocky, needle like 7. Matrix: submm, Plag, Pyx 8. Secondary Minerals: 2nd min in vesicles 9. Encrustations: <1mm Mn	x		3-5				
SO208 DR2-8	1. Rock Type: pillow basalt, altered 2. Size: 11x7x5 3. Shape / Angularity: subangular 4. Color of cut surface: light grey, dark grey, tan 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: plag, needle like, tabular, 30%, fresh to altered, submm; pyx, 30% fresh to altered, submm, blocky 7. Matrix: submm, Plag, Pyx 8. Secondary Minerals: 2nd min along cracks, alt decreases into rock 9. Encrustations: <1mm Mn			2-4				
SO208 DR2-9	1. Rock Type: pillow basalt, altered 2. Size: 14x10x9 3. Shape / Angularity: subangular 4. Color of cut surface: light grey, dark grey, tan 5. Texture / Vesicularity: massive, 3% vesicles, 80% coated with ooze 6. Phenocrysts: plag, needle like, platey, 50%, fresh to altered, submm; pyx, 10% fresh, submm, blocky 7. Matrix: same as #8 8. Secondary Minerals: same as #8 9. Encrustations: same as #8			3				
SO208 DR2-10	1. Rock Type: pillow basalt, altered 2. Size: 17x17x12 3. Shape / Angularity: angular to subangular 4. Color of cut surface: light grey, dark grey, tan 5. Texture / Vesicularity: massive, <1% vesicles, all filled 6. Phenocrysts: plag, blade like, 30%, fresh to altered, submm; pyx, 25% fresh to altered, submm, blocky 7. Matrix: submm Plag and Pyx 8. Secondary Minerals: 2nd min. in vesicals prob. due to alteration of Plag and Pyx 9. Encrustations: <1mm Mn		x	3				
SO208 DR2-11	1. Rock Type: pillow basalt, altered 2. Size: 11x9x7 3. Shape / Angularity: angular to subangular 4. Color of cut surface: light grey, dark grey, tan/green 5. Texture / Vesicularity: massive, <1% vesicles, 33%l filled with ooze 6. Phenocrysts: plag: needle like, 40%, fresh to altered, submm; pyx: 30% fresh to altered, submm, blocky 7. Matrix: submm Plag and Pyx 8. Secondary Minerals: 2nd min. due to alteration of px 9. Encrustations: <1mm Mn			5				

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR2-12	1. Rock Type: pillow basalt, altered 2. Size: 13x9x8 3. Shape / Angularity: angular to subangular 4. Color of cut surface: light grey, dark grey, tan green 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: plag: platy, needle like, 40%, altered, submm; pyx: (hard to see) 15% fresh to altered, submm, blocky 7. Matrix: submm Plag and Pyx 8. Secondary Minerals: 2nd min. due to alteration of px 9. Encrustations: <1mm Mn			5				
SO208 DR2-13	1. Rock Type: pillow basalt, altered 2. Size: 1713x7 3. Shape / Angularity: angular to subangular 4. Color of cut surface: light grey, dark grey, tan/green 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: plag:tabular, 30%, slightly altered to very altered, submm; pyx: 25% fresh to altered, submm, blocky 7. Matrix: submm Plag and Pyx 8. Secondary Minerals: 2nd min. due to alteration of px 9. Encrustations: <1mm Mn			5				
SO208 DR2-14	1. Rock Type: pillow basalt, altered 2. Size: 11x9x8 3. Shape / Angularity: angular to subangular 4. Color of cut surface: light grey, tan/green 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: plag:tabular, 30%, slightly altered to very altered, submm; pyx: 25% fresh to altered, submm, blocky 7. Matrix: submm Plag and Pyx 8. Secondary Minerals: 2nd min. due to alteration of px 9. Encrustations: <1mm Mn			5				
SO208 DR2-15	1. Rock Type: pillow basalt, altered 2. Size: 19x17x10 3. Shape / Angularity: angular to subangular 4. Color of cut surface: light grey, dark grey, tan 5. Texture / Vesicularity: massive, 4% vesicles 6. Phenocrysts: plag:tabular, 30%, slightly altered to very strongly altered, submm; pyx: 25% fresh to altered, submm, blocky 7. Matrix: submm Plag and Pyx 8. Secondary Minerals: 2nd min. due to alteration of px 9. Encrustations: 12mm Mn, volcano clastics in crust	x	x	5				
SO208 DR2-16-VC	1. Rock Type: basaltic volcaniclastic breccia 2. Size: 17x14x11 3. Shape / Angularity: subrounded-irregular 4. Color of cut surface: grey and cream 5. clasts: same as #1&15, ranging from fresh to highly altered, poss. with glassy rims, vesicularity 0-5% 7. Matrix: calcareous ooze (forams) and palagonite 8. Secondary Minerals: see #1 9. Encrustations: <1mm Mn 10. Comment: very poorly sorted monomict vc, clasts <1mm up to 6cm angular and irregular shaped blocky, no bedding, clasts spalling off larger fragments insitu fragmentation of lava flow	x						
SO208 DR2-17-VC	1. Rock Type: basaltic volcaniclastic breccia 2. Size:27x15x15 3. Shape / Angularity: subrounded-irregular 4. Color of cut surface: grey and cream 5. clasts: same as #1&15, ranging from fresh to highly altered, poss. with glassy rims, vesicularity 0-5% 7. Matrix: calcareous ooze (forams) and palagonite 8. Secondary Minerals: see #1 9. Encrustations: Mn up to 10mm 10. Comment: very poorly sorted monomict vc, clasts <1mm up to 70mm angular and irregular shaped blocky, no bedding, clasts spalling off larger fragments insitu fragmentation of lava flow	x						
SO208 DR2-18-VC	1. Rock Type: basaltic volcaniclastic breccia 2. Size: 30x25x15 3. Shape / Angularity: subrounded-irregular 4. Color of cut surface: grey and cream 5. clasts: same as #1&15, ranging from fresh to highly altered, poss. with glassy rims, vesicularity 0-5% 7. Matrix: calcareous ooze, generally with pervasive min. cementation 8. Secondary Minerals: see #1 9. Encrustations: Mn up to 30mm 10. Comment: generally more altered than 16vc and 17vc, fresh glass little likly, palagonite prevaling, clasts size <1mm-60mm							
SO208 DR2-19-VC	1. Rock Type: basaltic volcaniclastic breccia 2. Size: 27x21x14 3. Shape / Angularity: subrounded-irregular 4. Color of cut surface: grey and cream 5. clasts: same as #1&15, ranging from fresh to highly altered, poss. with glassy rims, vesicularity 0-5% 7. Matrix: calcareous ooze, generally with pervasive min. cementation 8. Secondary Minerals: see #1 9. Encrustations: Mn ca 10mm, palagonite rims around clasts 10. Comment: sample incorporates a 10cm-sized piece of pillow-fragment, same as #DR2-2-14, sequence of events: pillow first, subsequently vc forming eruption	x						

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR2-20-VC	1. Rock Type: basaltic vc rock - similar componentry as previous vc´s but smaller clasts siz, slab 2. Size: 30x16x16 3. Shape / Angularity: slab 4. Color of cut surface: grey and cream 5. clasts: same as #1&15, ranging from fresh to highly altered, poss. with glassy rims, vesicularity 0-5% 7. Matrix: mn cement > calcareous ooze 8. Secondary Minerals: see #1 9. Encrustations: <1mm Mn ca 10mm 10. Comment: clast <1-20mm angular, bedding: crude horizontal 5-20mm thick layers of alterating coarse & finer clasts, no grading, each bed moderately well sorted	x						
SO208 DR2-21-VC	1. Rock Type: basaltic fine grained vc rock - similar to DR2-19vc with faint bedding 2. Size: 17x10x7 3. Shape / Angularity: slab 10. Comment: clast <1-15mm very faintly bedded, slightly sorted, no clast-alignmment, a 5cm piece of pillow basalt incorporated (same as DR2-19vc)							
SO208 DR2-22-VC	1. Rock Type: basaltic vc similar to 16vc 2. Size: 17x9x7 3. Shape / Angularity: slab 10. Comment: clast <1-40mm							
SO208 DR2-23-M	1. Rock Type: mn encrusted sediment 2. Size: 12x10x7 3. Shape / Angularity: round 4. Color of cut surface: dark brown 5. Texture / Vesicularity: massive 10. Comment: pervasively mn-growth & infiltration in carbonaceous sediment							

SO208 MUC3 **Description of Location and Structure: Deep Sea Plain (MUC)**
MUC on bottom UTC 17/07/10 18:15hrs, lat 8°10,855'N, long 90°00,71'W, depth 3459m
MUC off bottom UTC 17/07/10 18:18hrs, lat 8°10,855'N, long 90°00,71'W, depth 3459m
total volume: 1 tube
Comments:

SO208 MUC4 **Description of Location and Structure: seamount top (MUC)**
MUC on bottom UTC 17/07/10 22:28hrs, lat 8°00,229'N, long 90°80,83'W, depth 2319m
MUC off bottom UTC 17/07/10 22:41hrs, lat 8°00,19'N, long 90°80,874'W, depth 2343m
total volume: empty
Comments:

SO208 DR5 **Description of Location and Structure: GUATBO1-Eastern base of "Egg" a seamount**
Dredge on bottom UTC 18/07/10 03:04hrs, lat 07°49,72'N, long 90°25,57'W, depth 3410m
Dredge off bottom UTC 18/07/10 03:46hrs, lat 07°49,54'N, long 90°25,68'W, depth 3099m
total volume: empty
Comments:

Appendix IIa (Rock Description Leg 1)

SO208 DR6
Description of Location and Structure: GUATBO1 - "Egg"seamount, NW-SE striking seamount, oval shaped seamount with steep E-ward dipping flank

Dredge on bottom UTC 18/07/10 06:42hrs, lat 07°50,32'N, long 90°28,15'W, depth 3096m

Dredge off bottom UTC 18/07/10 07:48hrs, lat 07°50,16'N, long 90°28,44'W, depth 2777m

total volume: very few rocks, 6 small pieces

Comments: pillow fragment with thin, partially fresh glass rims, in situ samples broken off along cooling fracture

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR6-1	1. Rock Type: volcanic pillow fragment, medium altered 2. Size: 7x5x3 3. Shape / Angularity: rounded - subangular 4. Color of cut surface: dark grey chilled margin, light grey, yellow/brown tan, center light to dark grey (dry) 5. Texture / Vesicularity: aphyric, dense, vugs < 3% 7. Matrix: very fine grained no microphenocrysts 8. Secondary Minerals: 2nd min. fillings in vugs 9. Encrustations: Mn coating, partly Mn crust < 5mm 10. Comment: pillow shaped fragment, chilled margin with fresh glass	x						
SO208 DR6-2	1. Rock Type: volcanic pillow fragment, more altered as DR6-1 2. Size: 8x7x5 3. Shape / Angularity: subangular 4. Color of cut surface: dark grey chilled margin, light grey, yellow/brown tan, center light to dark grey (dry), halo along cracks 5. Texture / Vesicularity: aphyric, dense, vugs < 3% 7. Matrix: very fine grained no microphenocrysts 8. Secondary Minerals: 2nd min. fillings in vugs 9. Encrustations: Mn coating, partly Mn crust < 5mm 10. Comment: pillow shaped fragment, chilled margin with fresh glass	x						
SO208 DR6-3	1. Rock Type: volcanic pillow fragment, slightly altered 2. Size: 8x5x3 3. Shape / Angularity: rounded to subangular 4. Color of cut surface: dark grey chilled margin, light grey, yellow/brown tan, center light to dark grey (dry), halo along cracks 5. Texture / Vesicularity: aphyric, dense, vugs < 3% 7. Matrix: very fine grained no microphenocrysts 8. Secondary Minerals: partly 2nd min. fillings in vugs 9. Encrustations: Mn coating, partly Mn crust < 5mm 10. Comment: pillow shaped fragment, chilled margin with fresh glass	x						
SO208 DR6-4	1. Rock Type: volcanic pillow fragment, medium altered 2. Size:8x6x6 3. Shape / Angularity: rounded - subangular 4. Color of cut surface: dark grey chilled margin, light grey, yellow/brown tan, center light to dark grey (dry) 5. Texture / Vesicularity: aphyric, dense, vugs < 3% 7. Matrix: very fine grained no microphenocrysts 8. Secondary Minerals: 2nd min. fillings in cracks 9. Encrustations: Mn coating, partly Mn crust < 5mm 10. Comment: pillow shaped fragment, chilled margin with fresh glass	x						
SO208 DR6-5	1. Rock Type: volcanic pillow fragment, medium altered 2. Size:8x6x6 3. Shape / Angularity: rounded - subangular 4. Color of cut surface: dark grey chilled margin, light grey, yellow/brown tan, center light to dark grey (dry) 5. Texture / Vesicularity: aphyric, dense, vugs < 3% 7. Matrix: very fine grained no microphenocrysts 8. Secondary Minerals: 2nd min. fillings in vugs 9. Encrustations: Mn coating, partly Mn crust < 5mm 10. Comment: no glassy rim but chilled margin							
SO208 DR6-6	1. Rock Type: pillow fragment, volcanic, highly altered 2. Size: 13x7x4 3. Shape / Angularity: subangular 4. Color of cut surface: dry: dark grey, light grey 5. Texture / Vesicularity: aphyric, dense, vugs <3%, one big vug in the middle with crystal growth 7. Matrix: very fine grained no microphenocrysts 8. Secondary Minerals: 2nd min. fillings in vugs, Mn filling and other sediments in rrock pouch 9. Encrustations: Mn coating 10. Comment: no glassy rim and chilled margin							

Appendix IIa (Rock Description Leg 1)

SO208 DR7
Description of Location and Structure: "Boxer" Smnt, ca 25nm SW of "Egg" Smnt, largest of three circular seamounts, ca 3.5 km at base, E-flank is steeper than western flank, rising 400m above seafloor

Dredge on bottom UTC 18/07/10 12:58hrs, lat 07°38,61'N, long 90°52,20'W, depth 3398m
Dredge off bottom UTC 18/07/10 14:08hrs, lat 7°38,38'N, long 90°52,52'W, depth 2973m
total volume: very few rocks
Comments:

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR7-1	1. Rock Type: pillow basalt, very strongly altered 2. Size: 8x6x5 3. Shape / Angularity: angular 4. Color of cut surface: brown / tan 5. Texture / Vesicularity: massive, 1% vesicles, 100% filled 6. Phenocrysts: Pyx: blocky, 3%m altered, mm to submm; Plag: tabular, 25 altered, submm 7. Matrix: submm, Plag and Pyx 8. Secondary Minerals: vesicles filled with ooze and 2nd min. 9. Encrustations: Mn crust, 20mm 10. Comment: highly altered, especially near cracks, min. difficult to distinguish	x		5				
SO208 DR7-2	1. Rock Type: pillow basalt 2. Size: 9x7x6 3. Shape / Angularity: subangular 4. Color of cut surface: grey/tan green 5. Texture / Vesicularity: massive, vesicles with filling (ooze) 6. Phenocrysts: Pyx: ca 7%, mm to submm, fresh to altered; Plag: submm, 20%, tabular, fresh to altered 7. Matrix: submm, Plag, Pyx 9. Encrustations: <1mm Mn	x		4				
SO208 DR7-3	1. Rock Type: pillow basalt 2. Size: 10x8x7 3. Shape / Angularity: angular 4. Color of cut surface: brown / tan 5. Texture / Vesicularity: massive, no vesicles 6. Phenocrysts: Pyx: altered, 10%, mm, blocky 7. Matrix: submm, Plag Pyx 8. Secondary Minerals: Mn crust <45mm			6				

SO208 TVG8
Description of Location and Structure: "Horseshoe"; round structure with with central crater, 2nd "donut" from N, from top of NE crater rim into crater

TVG on bottom UTC 18/07/10 22:46hrs, lat 6°53,99'N, long 91°34,71'W, depth 3195m
TVG off bottom UTC 19/07/10 00:10hrs, lat 6°53,88'N, long 91°34,82'W, depth 3312m
total volume: full
Comments: mud and 8 Mn nodules

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 TVG8-1-M	1. Rock Type: Mn-knoll 2. Size: 10x9x8							
SO208 TVG8-2-M	1. Rock Type: Mn knoll 2. Size: 11x8x7							
SO208 TVG8-3-M	1. Rock Type: Mn-knoll 2. Size: 6x5x5							
SO208 TVG8-4-M	1. Rock Type: Mn-knoll 2. Size: 9x9x5 10: Comment: sediment (deep sea clay) between single knolls							

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 TVG8-5-M	1. Rock Type: Mn-knoll 2. Size:12x9x5							

SO208 DR9 **Description of Location and Structure: "Horseshoe"**	
Dredge on bottom	UTC 19/07/10 03:18hrs, lat 6°53,80'N, long 91°35,11'W, depth 3288m
Dredge off bottom	UTC 19/07/10 03:58hrs, lat 6°53,60'N, long 91°35,34'W, depth 3232m
total volume:	few manganese knolls
Comments:	Mn-knolls only

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR9-1	1. Rock Type: Mn-knoll with basalt core, volcanic, glass, medium altered 2. Size: 9x8x8 3. Shape / Angularity: rounded 4. Color of cut surface: dry: dark grey, yellowish/brown rim 5. Texture / Vesicularity: aphyric: 40% vesicles 7. Matrix: gm submm-mm, altered at margin 8. Secondary Minerals: vesicles filled with 2nd min. 9. Encrustations: Mn crust up to 20mm 10. Comment: Mn-knoll with basalt core, high vesicularity and glassy texture, alteration rim between glass and Mn		x					
SO208 DR9-2	1. Rock Type: Mn-knoll with basalt core, volcanic, glass, medium altered 2. Size: 8x8x8 3. Shape / Angularity: rounded 4. Color of cut surface: dry: dark grey, yellowish/brown rim 5. Texture / Vesicularity: aphyric: 50% vesicles 7. Matrix: gm submm-mm, altered at margin 8. Secondary Minerals: vesicles filled with 2nd min. 9. Encrustations: Mn crust up to 20mm 10. Comment: Mn-knoll with basalt core, high vesicularity and glassy texture, alteration rim between glass and Mn		x					
SO208 DR9-3	1. Rock Type: Mn-knoll with basalt core, volcanic, glass, medium altered 2. Size: 8x8x8 3. Shape / Angularity: rounded 4. Color of cut surface: dry: dark grey, yellowish/brown rim 5. Texture / Vesicularity: aphyric: 50% vesicles 7. Matrix: gm submm-mm, altered at margin 8. Secondary Minerals: vesicles filled with 2nd min. 9. Encrustations: Mn crust up to 20mm 10. Comment: Mn-knoll with basalt core, high vesicularity and glassy texture, alteration rim between glass and Mn		x					
SO208 DR9-4	1. Rock Type: Mn-knoll with basalt core, volcanic, glass, medium altered 2. Size: 9x9x9 3. Shape / Angularity: rounded 4. Color of cut surface: dry: dark grey, yellowish/brown rim 5. Texture / Vesicularity: aphyric: 50% vesicles 7. Matrix: gm submm-mm, altered at margin 8. Secondary Minerals: vesicles filled with 2nd min. 9. Encrustations: Mn crust up to 20mm 10. Comment: Mn-knoll with basalt core, high vesicularity and glassy texture, alteration rim between glass and Mn							
SO208 DR9-5	1. Rock Type: Mn-knoll with basalt core, volcanic, medium-highly altered 2. Size: 8x8x8 3. Shape / Angularity: round 4. Color of cut surface: dry; light grey tan 5. Texture / Vesicularity: aphyric, <8% vesicles 7. Matrix: dense, submm-mm 8. Secondary Minerals: alteration along cracks, 2nd min. in veins 9. Encrustations: thick Mn crust up to 4mm thick	x						
SO208 DR9-6	1. Rock Type:Mn-knoll with basalt core, volcanic, highly altered 2. Size: 10x10x8 3. Shape / Angularity: round 4. Color of cut surface: dry; light grey tan 5. Texture / Vesicularity: aphyric, <8% vesicles 7. Matrix: dense, submm-mm 8. Secondary Minerals: alteration along cracks, 2nd min. in veins 9. Encrustations: thick Mn crust up to 4mm thick							
SO208 DR9-7	1. Rock Type: Mn-knoll with basalt core, volcanic, glass 2. Size: 7x7x7 3. Shape / Angularity: round 4. Color of cut surface: dry; fresh glass, dark grey/black; altered part, yellowish/brown 5. Texture / Vesicularity: aphyric, 30% vesicles 7. Matrix: submm-mm 8. Secondary Minerals: alteration along rim, formation of 2nd min. partly in vesicles, palagonization of glass 9. Encrustations: thick Mn-crus, up to 20mm	x						

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR9-8	1. Rock Type: Mn-knoll with basalt core, volcanic, glass 2. Size: 7x7x7 3. Shape / Angularity: round 4. Color of cut surface: dry: fresh glass, dark grey/black; altered part, yellowish/brown 5. Texture / Vesicularity: aphyric, 30% vesicles 7. Matrix: submm-mm 8. Secondary Minerals: alteration along rim, formation of 2nd min. partly in vesicles, palagonization of glass 9. Encrustations: thick Mn-crus, up to 20mm							
SO208 DR9-9	1. Rock Type: Mn-knoll with basalt core, volcanic, glass 2. Size: 8x8x8 3. Shape / Angularity: round 4. Color of cut surface: dry: fresh glass, dark grey/black; altered part, yellowish/brown 5. Texture / Vesicularity: aphyric, 30% vesicles 7. Matrix: submm-mm 8. Secondary Minerals: alteration along rim, formation of 2nd min. partly in vesicles, palagonization of glass 9. Encrustations: thick Mn-crus, up to 20mm							
SO208 DR9-10-X	1. Rock Type: Mn-knoll with basalt core, no glass, highly altered 2. Size: 11x10x9 3. Shape / Angularity: round 4. Color of cut surface: dry: light grey tan 5. Texture / Vesicularity: aphyric, 30% vesicles, filled vugs 6. Phenocrysts: 7. Matrix: submm-mm 8. Secondary Minerals: 2nd min. in vugs and vesicles, altered (palagonite) rim, Fe-Hydroxide, sediment 9. Encrustations: Mn crust up to 20mm thick 10. Comment: encrusted basalt cores, strongly altered, filling in vesicles and vugs						archive	
SO208 DR9-11-X	1. Rock Type: Mn-knoll with basalt core, no glass, highly altered 2. Size: 9x9x7 3. Shape / Angularity: round 4. Color of cut surface: dry: light grey tan 5. Texture / Vesicularity: aphyric, 30% vesicles, filled vugs 7. Matrix: submm-mm 8. Secondary Minerals: 2nd min. in vugs and vesicles, altered (palagonite) rim, Fe-Hydroxide, sediment 9. Encrustations: Mn crust up to 20mm thick 10. Comment: encrusted basalt cores, strongly altered, filling in vesicles and vugs						archive	
SO208 DR9-12-X	1. Rock Type: Mn-knoll with basalt core, no glass, highly altered 2. Size: 10x8x8 3. Shape / Angularity: round 4. Color of cut surface: dry: light grey tan 5. Texture / Vesicularity: aphyric, 30% vesicles, filled vugs 7. Matrix: submm-mm 8. Secondary Minerals: 2nd min. in vugs and vesicles, altered (palagonite) rim, Fe-Hydroxide, sediment 9. Encrustations: Mn crust up to 20mm thick 10. Comment: encrusted basalt cores, strongly altered, filling in vesicles and vugs						archive	
SO208 DR9-13-X	1. Rock Type: Mn-knoll with basalt core, no glass, highly altered 2. Size: 8x8x8 3. Shape / Angularity: round 4. Color of cut surface: dry: light grey tan 5. Texture / Vesicularity: aphyric, 30% vesicles, filled vugs 7. Matrix: submm-mm 8. Secondary Minerals: 2nd min. in vugs and vesicles, altered (palagonite) rim, Fe-Hydroxide, sediment 9. Encrustations: Mn crust up to 20mm thick 10. Comment: encrusted basalt cores, strongly altered, filling in vesicles and vugs						archive	
SO208 DR9-14-X	1. Rock Type: Mn nodule 2. Size: 10x7x7 3. Shape / Angularity: round						archive	
SO208 DR9-15-X	1. Rock Type: Mn nodules (4 pieces) 10. Comment: partly filled between individual knodules with deep sea clay and sediment						archive	

SO208 DR10 **Description of Location and Structure: "Krapfen", small irregular ridge shaped seamount, 3,5nm SW of "Horseshoe"**	
Dredge on bottom	UTC 19/07/10 07:01hrs, lat 6°51,80'N, long 91°38,55'W, depth 3567m
Dredge off bottom	UTC 19/07/10 07:53hrs, lat 6°51,47'N, long 91°38,59'W, depth 3572m
total volume:	empty
Comments:	

Appendix IIa (Rock Description Leg 1)

SO208 DR11
Description of Location and Structure: "Donut" ca 10nm W of "Krapfen"; crater shaped seamount with ringwall-like crater rim. Dredge at outer NE flank

Dredge on bottom	UTC 19/07/10 11:20hrs, lat 06°51,11'N, long 91°48,37'W, depth 3520m
Dredge off bottom	UTC 19/07/10 12:39hrs, lat 06°50,89'N, long 91°48,69'W, depth 3290m
total volume:	few rocks
Comments:	small manganese-crusts, some with basalt as core

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR11-1	1. Rock Type: Mn crust with core of volcaniclastics and lava fragments 2. Size: 18x15x11; lava fragment: 8x8x6 3. Shape / Angularity: round-knobbly 4. Color of cut surface: Mn: dark brown to black; vc & lava: grey and brwon (light) 5. Texture / Vesicularity: non vesicular to poorly vesicular (2%), most vesicles <1mm, ccircular, filled, rarely up to 3mm irregular shaped amygdules; texture: massive, lava with faint flow bending 6. Phenocrysts: plg: lath to tabular, 1-2mm, 3%, appear fresh; pyx 1mm, 1-2% 7. Matrix: very dense, microcrystalline 8. Secondary Minerals: some reddish-brwon alteration along cracks 9. Encrustations: Mn crust of up to 30mm thickness 10. Comment: poss. fresh glass along margin of lava fragment (ca: 5mm); vc: <1mm-5mm angular blocky fragments, poorly sorted, no bedding, in situ deposit	x		2	poss			
SO208 DR11-2	1. Rock Type: same as #1 but without vc 2. Size: 10x9x8; lava fragment: 4x3x3 9. Encrustations: up to 35mm Mn crust 10. Comment: glassy surface of lava - carefull separation of Mn required			2	poss			
SO208 DR11-3	1. Rock Type: same as #2 but no glassy surface 2. Size: 12x9x6; lava fragment: 3x3x2 5. Texture / Vesicularity: poorly vesicular, 1mm vesicles, filled (2%) 6. Phenocrysts: plg: up to 5%, tabular & laths, appear slightly altered, <1mm-2mm, px<2% 10. Comment: angular junk of lava			3				
SO208 DR11-4-M	1. Rock Type: knubbly Mn with core of Mn-fragment (which appered frist to be basalt) 2. Size: 10x9x8 3. Shape / Angularity: round knobbly surface 4. Color of cut surface: dark brown black 5. Texture / Vesicularity: layered growth rings 10. Comment:							
SO208 DR11-5	1. Rock Type: same as #3 2. Size: 11x9x8, lava fragment: 4x3x2 10. Comment:			3				
SO208 DR11-6	1. Rock Type: same as #3 2. Size: 11x8x8; lava fragment: 4x3x3 10. Comment:			3				
SO208 DR11-7	1. Rock Type: same as #3 2. Size: 6x5x5, lava fragment 3x2x2 10. Comment:			3				

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR11-8-M	1. Rock Type: same as #4 2. Size: 13x11x10 10. Comment:							
SO208 DR11-9-X	10. Comment: 6 Mn nodules as archieve in one bag (same as -8M)							

SO208 DR12 **Description of Location and Structure: "Embryo" 20nm SW of DR11, irregular shaped smnt, NE-flank**	
Dredge on bottom	UTC 19/07/10 17:54hrs, lat 06°46,53'N, long 92°08,91'W, depth 3499m
Dredge off bottom	UTC 19/07/10 19:36hrs, lat 06°46,44'N, long 92°08,91'W, depth 3417m
total volume:	empty
Comments:	

SO208 MUC13 **Description of Location and Structure: smnt "Embryo" top, TV-MUC**	
MUC on bottom	UTC 19/07/10 23:23hrs, lat 06°45,71'N, long 92°95,55'W, depth 2878m
MUC off bottom	UTC 19/07/10 23:24hrs, lat 06°45,71'N, long 92°95,55'W, depth 2880m
total volume:	
Comments:	

SO208 MUC14 **Description of Location and Structure: deep sea plane**	
MUC on bottom	UTC 20/07/10 02:09hrs, lat 06°48,28'N, long 92°06,83'W, depth 3639m
MUC off bottom	UTC 20/07/10 02:10hrs, lat 06°48,28'N, long 92°06,72'W, depth 3640m
total volume:	11 tubes filled, 1 empty
Comments:	

SO208 DR15 **Description of Location and Structure: "Spiegelei", flat topped circular smnt with cone like structure on the western flank; samples were taken along northern flank**	
Dredge on bottom	UTC 20/07/10 12:20hrs, lat 06°56,80'N, long 91°28,20'W, depth 3104m
Dredge off bottom	UTC 20/07/10 13:35hrs, lat 07°56,42'N, long 91°28,24'W, depth 2783m
total volume:	1/3 full
Comments:	pillow basalts with fresh glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR15-1	1. Rock Type: volcanic glass 2. Size: 10x8x6 3. Shape / Angularity: rounded 4. Color of cut surface: dark and light grey 5. Texture / Vesicularity: glassy, 5% vesicularity 7. Matrix: glass (amorph) 9. Encrustations: <1mm Mn 10. Comment: likely to be basaltic glass	x		1	x			
SO208 DR15-2	1. Rock Type: volcanic glass 2. Size: 9x7x6 7. Matrix: glass 8. Secondary Minerals: 2nd min. in vesicles 10. Comment: same as #1	x		1	X			
SO208 DR15-3	1. Rock Type: volcanic glass 2. Size: 9x5x5 3. Shape / Angularity: rounded 4. Color of cut surface: dark and light grey 5. Texture / Vesicularity: glassy, 3% vesicles, 10% filled 8. Secondary Minerals:2nd min. in cracks and vesicles 10. Comment: same as #1			1	x			

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR15-4	1. Rock Type: pillow basalt (fresh) 2. Size: 42x21x16 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey 5. Texture / Vesicularity: massive, 1% vesicles, 50% filled 6. Phenocrysts: olivine (?): mm, 3% fresh, grainy-amorphous; pyx: 1% fresh, tabular, blocky, submm; plag: mm to submm, 15%, fresh, needle like 7. Matrix: submm, plag + pyx 8. Secondary Minerals: 2nd min. in vesicles, alteration along cracks 9. Encrustations: becomes more glassy, up to a few cm	x	x	1	x		EMP	
SO208 DR15-5	1. Rock Type: pillow basalt, slightly altered 2. Size: 45x40x32 3. Shape / Angularity: subangular 4. Color of cut surface: dry: very light grey, brown 5. Texture / Vesicularity: massive though clear gradation of alteration 6. Phenocrysts: pyx, fresh to altered, 2% blocky, mm 7. Matrix: submm, plag pyx 8. Secondary Minerals: perhaps due to alteration 9. Encrustations: see #4 10. Comment: difiicult to see distinguished phases	x	x	3	x		EMP	
SO208 DR15-6	1. Rock Type: basaltic pillow, slightly altered 2. Size: 43x39x37 3. Shape / Angularity: subangular 4. Color of cut surface: dark grey, light grey 5. Texture / Vesicularity: massive, 3% vesicles, 70% filled 6. Phenocrysts: plag: 40% mm to submm, fresh to altered (mostly fresh), feather, needle like; pyx: 35%, submm, fresh, blocky; Ol: mm packets to submm, 2% fresh, grainy-amorph 10. Comment: similar to #4	x	x	1				
SO208 DR15-7	1. Rock Type: pillow basalt, slightly altered 2. Size: 29x7x16 3. Shape / Angularity: subangular 4. Color of cut surface: different shades of grey, tan/brown 5. Texture / Vesicularity: massive though clear gradation of alteration across rock, <1% vesicles; 20% filled 6. Phenocrysts: pyx (perhaps glass), tabular but but breaks concoidally (most likely glass) 7. Matrix: plag to pyroxene, submm 8. Secondary Minerals: pockets of glass appear oxidized 9. Encrustations: fresher looking towards outside 10. Comment:	x		3	x			
SO208 DR15-8	1. Rock Type: pillow basalt, slightly altered 2. Size: 15x13x9 3. Shape / Angularity: massive 4. Color of cut surface: dark grey and light grey 5. Texture / Vesicularity: massive, <1% vesicles 8. Secondary Minerals: same as #2 10. Comment: similar to #7	x	x	2	x			
SO208 DR15-9	1. Rock Type: pillow basalt, slightly altered 2. Size: 15x13x9 3. Shape / Angularity: subangular 4. Color of cut surface: light grey 5. Texture / Vesicularity: massive, 30% vesicles, 10% filled 6. Phenocrysts: same as #7 7. Matrix: same as #7 8. Secondary Minerals: same as #8 9. Encrustations: same as #7 10. Comment: similar to #7			3-4	x			
SO208 DR15-10	1. Rock Type: pillow basalt, altered 2. Size: 11x10x7 3. Shape / Angularity: subangular 4. Color of cut surface: dark and light grey 5. Texture / Vesicularity: massive, 30% vesicles, 20% filled 10. Comment: similar to #7			5				
SO208 DR15-11	1. Rock Type: pillow basalt 2. Size: 9x7x5 5. Texture / Vesicularity: massive, 1% vesicles, 50 % filled 6. Phenocrysts: same as #7 8. Secondary Minerals: ooze covering vesicles appear oxidized, cc in vesicles ranges from fresh to altered 10. Comment: similar to #10			4	x			

Appendix IIa (Rock Description Leg 1)

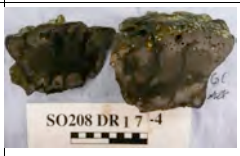
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR15-12	1. Rock Type:pillow basalt, altered, 2. Size: 24x19x13 3. Shape / Angularity: subangular 5. Texture / Vesicularity: massive, 3% vesicles, 50% filled 8. Secondary Minerals: same as #11 10. Comment: similar to #7			5				
SO208 DR15-13	1. Rock Type:pillow basalt, altered 2. Size: 38x30x25 3. Shape / Angularity: subangular 4. Color of cut surface: dark grey, light grey, orange/tan 10. Comment: similar to #7			5	x			
SO208 DR15-14	1. Rock Type:pillow basalt 2. Size: 18x15x11 3. Shape / Angularity: subangular 4. Color of cut surface: dank grey, light grey, tan 5. Texture / Vesicularity: massive, 25% vesicles, 1% filled 7. Matrix: plag mm to submm; pyx submm 8. Secondary Minerals: plag is altered in some places 9. Encrustations: <1mm Mn 10. Comment: similar to #7	x		4			EMP	
SO208 DR15-A1	10. Comment: three small pieces similar to 1,2,3							
SO208 DR15-A2	10. Comment: three pieces similar to 8,9,10							
SO208 DR15-A3	10. Comment: three pieces similar to 13,14							

SO208 DR16 **Description of Location and Structure: "Looser", NE slope of large gently sloping edifice**	
Dredge on bottom	UTC 20/07/10 19:46hrs, lat 08°20,63'N, long 91°11,30'W, depth 2591m
Dredge off bottom	UTC 20/07/10 21:49hrs, lat 08°20,74'N, long 91°10,97'W, depth 2777m
total volume:	empty
Comments:	

Appendix IIa (Rock Description Leg 1)

SO208 DR17
Description of Location and Structure: "Eye", 25nm NE of "Looser", circular smnt with highest elevation along western half, top charcterized by several cones in the E, track is along northern slope where a small depression cuts into the flank

Dredge on bottom	UTC 21/07/10 04:05hrs, lat 08°45,20'N, long 90°43,37'W, depth 2867m
Dredge off bottom	UTC 21/07/10 05:35hrs, lat 08°44,73'N, long 90°43,54'W, depth 2406m
total volume:	full
Comments:	pillow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR17-1	1. Rock Type: pillow lava with glassy margin, fairly fresh ground mass 2. Size: 23x22x21 3. Shape / Angularity: round pillow shaped, angular when smashed along fractures 4. Color of cut surface: medium grey when dry 5. Texture / Vesicularity: dense interior, <1%, < 1mm unfilled vesicles along pillow margin, some filled with cc 7. Matrix: aphyric, fsp-opx in gm 8. Secondary Minerals: cc filling of vesicles 9. Encrustations: 2mm Mn crust 10. Comment: representative sample of the aphyric lava unit, 1-2mm glassy margin with fresh glass. There are better glass samples in this dredge but there are only a few samples that contain fresh glass together with well preserved gm	x	x	2-3	x			no picture
SO208 DR17-2	1. Rock Type: pillow fragment with chilled margin, fairly fresh gm 2. Size: 14x13x13 3. Shape / Angularity: angular 4. Color of cut surface: dark grey interior, light brown tan along margin 5. Texture / Vesicularity: dense, aphyric, 0,5% mostly unfilled vesicles, _ < 0,3mm 8. Secondary Minerals: palagonite along glass margin 9. Encrustations: minor Mn patches 10. Comment: representative pillow of the aphyric lava group might be slighty fresher than sample #1	x	x	2-3				no picture
SO208 DR17-3	1. Rock Type: pillow fragment similar to #1 & #2, medium altered 2. Size: 17x17x10: 4. Color of cut surface: greyish to brwon 6. Phenocrysts: 1-2% fsp microphenocrysts, _ 0,5mm 7. Matrix: sample differ from #1 & #2 by having a small amount of microphenocrysts	x	x	2-3				no picture
SO208 DR17-4	1. Rock Type: pillow fragment with thin glass rim 2. Size: 14x13x8 3. Shape / Angularity: subangular 4. Color of cut surface: dry: grey darker grey along cracks 5. Texture / Vesicularity: dense interior with vesicles, partly along pillow margin, < 3% vesicles, partly filled with ooze 6. Phenocrysts: fsp 8. Secondary Minerals: 2nd min in vesicles <3%, alteration of glass 9. Encrustations: no Mn crust, partly thin layer of fresh glass 10. Comment: pillow fragment with glassy margin and high amount of vesicles along pillow margin, veins and cracks trough entire rock	x	x					
SO208 DR17-5	1. Rock Type: similar to #4, slightly altered 2. Size: 15x12x10 3. Shape / Angularity: subangular 4. Color of cut surface: similar to #4 5. Texture / Vesicularity: aphyric gm, dense with vesicles partly filled with clay and ooze 6. Phenocrysts: fsp plattsy, <10% _ <1mm 7. Matrix: submm, fsp 8. Secondary Minerals: vesicles along margin are filled with 2nd min 9. Encrustations: no crust, partly thin glassy crust							
SO208 DR17-6	1. Rock Type: pillow breccia with glassy rim 2. Size: 20x10x9 3. Shape / Angularity: rounded 4. Color of cut surface: dark grey - glass rim, light grey tan - inner part 5. Texture / Vesicularity: porphyric, < 0,5mm glass rim with fsp 6. Phenocrysts: fsp: platty, fresh, 7% submm-mm 7. Matrix: submm-mm with fsp in gm 8. Secondary Minerals: fsp partly altered, veins, cracks filled with 22nd min 10. Comment: representative for the following samples, relatively high amount of fsp, altered inner part but ca 5mm fresh glass rim			2-3	x			
SO208 DR17-7	1. Rock Type: similar to #6 2. Size: 18x10x6 5. Texture / Vesicularity: vesicles <3%, glass rim up to 10mm, fresh glass in rim 8. Secondary Minerals: alteration along cracks 10. Comment: thin section is representative for samples #6 - #12	x		1-2	x			no picture

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR17-8	1. Rock Type:similar to #6-#7 2. Size: 16x11x6 5. Texture / Vesicularity: glass rim up to 20mm			2-3	x			
SO208 DR17-9	1. Rock Type: similar to sample #6 - #8 2. Size: 11x10x6 5. Texture / Vesicularity: vugs in center _ 15-25mm, partly filled with ooze, vesicles 3%			2-3	x			
SO208 DR17-10	1. Rock Type: imilar to sample #6 - #9 2. Size: 13x11x4 5. Texture / Vesicularity: vugs in center, _10mm, max 20mm thick glassy rim			1-2	x			
SO208 DR17-11	1. Rock Type: similar to sample #6-#10 2. Size: 11x7x4 5. Texture / Vesicularity: vugs in center, _15mm, glass rim < 5mm 8. Secondary Minerals: 2nd min. due to alteration of fsp 10. Comment:			1-2	x			
SO208 DR17-12	1. Rock Type: similar to sample #6-#11 2. Size: 10x7x4 5. Texture / Vesicularity: glass rim 5mm-10mm			2-3	x			
SO208 DR17-13-VC	1. Rock Type: vc with fresh glass but strong signs of alteration (palagonite) 2. Size: 34x23x12 3. Shape / Angularity: round 4. Color of cut surface: yellowish/brown, with big fresh pieces of glass 5. Texture / Vesicularity: porphyric but dense clasts, irregular shaped, poorly sorted 7. Matrix: partly palagonite, ooze, clayish material 8. Secondary Minerals: fresh clasts in core, alteration rim of about 5mm 10. Comment: pillow breccia which was pillow shaped, containing fresh pieces of glass, partly palagonite	x						
SO208 DR17-14-VC	1. Rock Type: very similar to #13vc 2. Size: 30x19x13 10. Comment: clasts:irregular shaped, poorly sorted, mainly coated by palagonite, pieces of basalt incorporated, sizw of clasts vary between <1mm-25mm	x						
SO208 DR17-15-VC	1. Rock Type: similar to #13vc-#14vc 2. Size: 30x23x22 10. Comment: pieces of basalt incorporated, basalt: dense, vesicles 3%, light grey tan, vugs, partly filled, alteration along veins and cracks, thin Mn crust < 1mm	x						

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR17-16-VC	1. Rock Type: intrapillow hyaloclastite 2. Size: 30x20x19 10. Comment: basalt: light grey, yellowish tan, dense, aphyric, >10mm glass rim, alteration along cracks; hyaloclastite: irregular shaped pieces of glass in palagonite rim, fresh glass in rim, Mn coating	x						
SO208 DR17-17	1. Rock Type:hyaloclastite 2. Size: 20x7x6 10. Comment: clasts: irregular shaped, different sizes, cemented into yellowish matrix, fresh glass	x						
SO208 DR17-18	1. Rock Type: similar to #17 2. Size: 30x16x6 8. Secondary Minerals: 2nd min. due to alteration of clasts 10. Comment: irregular shaped, different sizes, bedded into yellowish matrix, partly glass fragments	x						
SO208 DR17-19	1. Rock Type: glassy sheet lava 2. Size: 18x13x13 3. Shape / Angularity: rounded 4. Color of cut surface: black 5. Texture / Vesicularity: amorph 8. Secondary Minerals: palagonite, Fe-OH encrustations 10. Comment: sample #19 - #31 are representative glass sample, most from sheet flow, small glass chips were taken to prepare for EMP and LA-ICP-MS, in order to check for chemical variation, sample 19 needs work to prepare more glass				x		EMP	
SO208 DR17-20	1. Rock Type: similar to #19 2. Size: 13x14x10 10. Comment: 7% fresh glass by volume				x		EMP	
SO208 DR17-21	1. Rock Type: similar to #19-#20 2. Size: 17x10x9 10. Comment: one side has nice glass rim, easy to prepare more				x		EMP	
SO208 DR17-22	1. Rock Type:simiar to #19-#21 2. Size: 12x10x6 10. Comment: 5% fresh glass, abundant whole rock				x		EMP	
SO208 DR17-23	1. Rock Type: similar to #19-#22 2. Size: 13x10x6 10. Comment: 3% fresh glass				x		EMP	

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR17-24	1. Rock Type similar to #19-#23 2. Size: 11x8x5 10. Comment: contains very little fresh glass				x		EMP	
SO208 DR17-25	1. Rock Type: similar to #19-#24 2. Size: 9x8x8 10. Comment: 5% fresh glass				x		EMP	
SO208 DR17-26	1. Rock Type: similar to #19-#25 2. Size: 10x7x6 10. Comment: 3% fresh glass				x		EMP	
SO208 DR17-27	1. Rock Type: no fresh glass 2. Size: 9x8x7				x		EMP	
SO208 DR17-28	1. Rock Type: similar to #19-#26 2. Size: 10x9x4 10. Comment: 3% fresh glass				x		EMP	
SO208 DR17-29	1. Rock Type:similar to #19-#16;#28 2. Size: 7x6x3 10. Comment: 5% fresh glass				x		EMP	
SO208 DR17-30	1. Rock Type: small rock chunk with 1mm glass rim 2. Size: 4x3x3 10. Comment: 1% glass				x		EMP	
SO208 DR17-31	1. Rock Type: foldet sheet lava 2. Size: 13x10x6 10. Comment: glass margin within fold, ca 5mm thick, followed by 10mm thick microlitic zone				x		EMP	

Appendix IIa (Rock Description Leg 1)

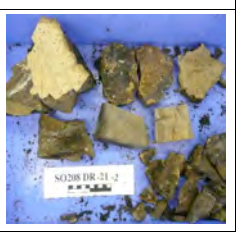
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR17-32-VC	10. Comment: no description							
SO208 DR17-33-X	1. Rock Type: similar to #1-#6 2. Size: 12x8x7							
SO208 DR17-34-X	1. Rock Type: similar to #1-#6 2. Size: 19x14x8							
SO208 DR17-35-X	1. Rock Type: similar to #1-#6 2. Size: 14x14x8 10. Comment: brecciation of lava to form volcaniclastics							
SO208 DR17-36-X	1. Rock Type: similar to #1-#6 2. Size: 20x16x10							
SO208 DR17-37-X	1. Rock Type: pillow with volcaniclastica 2. Size: 22x17x15 10. Comment: pillow with glassy rim, interior aphanitic, aphyric volcaniclastics, 1-2mm sized glassy clasts							
SO208 DR17-38-X	1. Rock Type: pillow 2. Size: 25x23x22							
SO208 DR17-39-X	10. Comment: several samples of sheet lava with fresh glass							

Appendix IIa (Rock Description Leg 1)

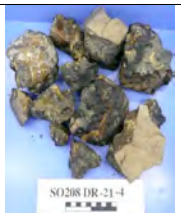
SO208 DR18 **Description of Location and Structure: "Knob" seamount ca 30nm SSE of DR17 "Eye"; NE-flank at lower section**								
Dredge on bottom	UTC 21/07/10 11:31hrs, lat 08°34,79'N, long 90°16,61'W, depth 3227m							
Dredge off bottom	UTC 21/07/10 12: hrs, lat 08°34,61'N, long 90°16,80'W, depth 2850m							
total volume:	very few rocks							
Comments:	Mn crusts only							
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR18-1-M	1. Rock Type: Manganese 2. Size: 13x13x4 3. Shape / Angularity: subangular 4. Color of cut surface: blck & dark brown 5. Texture / Vesicularity: undulatory							
SO208 DR18-2-M	1. Rock Type: Manganese 2. Size: 18x15x9 3. Shape / Angularity: subangular 4. Color of cut surface: black 6 dark brown 5. Texture / Vesicularity: undulatory							
SO208 DR18-3-M	1. Rock Type: Manganese 2. Size: 13x10x5 3. Shape / Angularity: subangular 4. Color of cut surface: black 6 dark brown 5. Texture / Vesicularity: undulatory							

SO208 MUC19 **Description of Location and Structure: top of smnt**	
MUC on bottom	UTC 21/07/10 18:02hrs, lat 08°43,31'N, long 90°44,14'W, depth 2426m
MUC off bottom	UTC 21/07/10 18:04hrs, lat 08°43,31'N, long 90°44,14'W, depth 2426m
total volume:	
Comments:	

SO208 MUC20 **Description of Location and Structure: abyssal plane**	
MUC on bottom	UTC 21/07/10 20:43hrs, lat 08°46,60'N, long 90°38,45'W, depth 3513m
MUC off bottom	UTC 21/07/10 20:44hrs, lat 08°46,61'N, long 90°38,45'W, depth 3487m
total volume:	7 of 12
Comments:	TV-MUC

SO208 DR21 **Description of Location and Structure: "Pickel", NE-SW striking volcanic (?) ridge with numerous cones. "Pickel" lies at the SE termination of the ridge**								
Dredge on bottom	UTC 22/07/10 06:22hrs, lat 09°37,86'N, long 89°50,65'W, depth 3329m							
Dredge off bottom	UTC 22/07/10 07:42hrs, lat 09°37,53'N, long 89°50,96'W, depth 3029m							
total volume:	100% full							
Comments:	pillows and pillow fragments							
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR21-1	1. Rock Type: pillow basalt, altered 2. Size: 34x21x17 3. Shape / Angularity: subangular 4. Color of cut surface: tan 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: pyx: <1%, submm, altered, blocky; plag: 2%, mm, fresh to altered, needle like 7. Matrix: spindle-like, web of plag, also pyx 8. Secondary Minerals: altered, maybe 2nd min. due to alteration 9. Encrustations: glass and manganese 10. Comment:	x	x	4	x		EMP	
SO208 DR21-2	1. Rock Type: pillow basalt, altered 2. Size: 31x30x19 3. Shape / Angularity: subangular 4. Color of cut surface: light grey, dark grey, tan 5. Texture / Vesicularity: massive, 7% vesicularity, 30% filled 6. Phenocrysts: plag: 3%, mm to submm, fresh to altered, needle-like; pyx: 2%, submm, fresh, tabular 7. Matrix: plag: mostly altered, needle to feather-like; pyx: mostly altered 8. Secondary Minerals: yes, in vesicles something bright orange - iddinsite (altered Ol?) 9. Encrustations: glass and manganese 10. Comment: pockets of (glassy) fresher looking basalt that is highly vesicular,	x	x	4	x		EMP	

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR21-3	1. Rock Type: pillow basalt, highly altered, similar to #2 2. Size: 27x16x16 3. Shape / Angularity: subangular 6. Phenocrysts: plag: <1%, fresh to altered, needle-like	x	x	3	x		EMP	
SO208 DR21-4	1. Rock Type: pillow basalt, fresh to altered 2. Size: 40x34x28 3. Shape / Angularity: subangular 4. Color of cut surface: tan 5. Texture / Vesicularity: massive, 2% vesicularity 6. Phenocrysts: iddingsite, 1%, submm, blocky habit; plag: 2%, mm to submm, needle-like, fresh to altered; pyx: <1%, submm, blocky to tabular, fresh to altered 7. Matrix: submm, plag, pyx 8. Secondary Minerals: iddingsite 9. Encrustations: up to 10mm Mn, glass 10. Comment:			4	x		EMP	
SO208 DR21-5	1. Rock Type: pillow basalt, highly altered 2. Size: 36x20x18 3. Shape / Angularity: subangular 4. Color of cut surface: brown / tan 5. Texture / Vesicularity: massive, 2% vesicles 6. Phenocrysts: iddingsite: 1%, see #4; plag: <1%, see #4; pyx: <1%, submm, blocky, fresh to altered 7. Matrix: submm, pyx, plag, altered to very strongly altered 8. Secondary Minerals: iddingsite 9. Encrustations: <1mm Mn with layers of glass 10. Comment:			5-6	x		EMP	
SO208 DR21-6	1. Rock Type: pillow basalt, highly altered 2. Size: 22x18x14 3. Shape / Angularity: subangular 4. Color of cut surface: tan 5. Texture / Vesicularity: massive, <1% vesicles 8. Secondary Minerals: iddingsite, 2nd min. in cracks 9. Encrustations: similar to #5 10. Comment: similar to #4			5-6	x		EMP	
SO208 DR21-7	1. Rock Type: similar to #1-#6 2. Size: 36x26x20 10. Comment: was not cut, appears to be similar to #1-#6				x		EMP	
SO208 DR21-8	1. Rock Type: similar to #1-#6 2. Size: 28x25x18 10. Comment: was not cut, appears to be similar to #1-#6				x		EMP	
SO208 DR21-9	1. Rock Type: similar to #1-#6 2. Size: 36x28x21 10. Comment: was not cut, appears to be similar to #1-#6				x		EMP	
SO208 DR21-10	1. Rock Type: pillow basalt, highly altered 2. Size: not determined 3. Shape / Angularity: subangular 4. Color of cut surface: tan orange 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: iddingsite: see #4; plag: see #4; pyx; see #4 9. Encrustations: 1mm Mn, glass 10. Comment: similar to #5			5				

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR21-11	1. Rock Type: pillow basalt 2. Size: 27x18x17 3. Shape / Angularity: subangular 4. Color of cut surface: tan, light grey dark grey 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: iddingsite: 2%, see #4; plag: <1%, altered, needle-like; pyx: 2,5%, elongate, tabular, fresh to altered 8. Secondary Minerals: iddingsite, 2nd min between basalt and glassy rim 9. Encrustations: 10mm glass and Mn 10. Comment: similar to #5	x		5-6	x			
SO208 DR21-12	1. Rock Type: pillow basalt, altered 2. Size: 16x13x10 3. Shape / Angularity: subangular 4. Color of cut surface: darkgrey, light grey ,brown tan 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: iddingsite: 1% similar to #4; plag: 2%, similar to #4; pyx: <1%, similar to #11 8. Secondary Minerals: similar to #11 9. Encrustations: up to 20mm thick glassy-Mn-brecciated crust 10. Comment: similar to #5			5	x			
SO208 DR21-13	1. Rock Type: pillow basalt, altered 2. Size: 17x14x9 3. Shape / Angularity: subangular 4. Color of cut surface: dark grey, light grey, tan 5. Texture / Vesicularity: massive, 7% vesicles, 20% filled 6. Phenocrysts: iddingsite: 2%, similar to #4; plag: 3%, submm, fresh, needle-like, tabular; pyx: <1% submm, fresh 7. Matrix: mostly plag, also pyx, highly altered to very altered 8. Secondary Minerals: iddingsite, similar to #11 9. Encrustations: <20mm glassy-Mn-brecciated crust 10. Comment:			5	x			
SO208 DR21-14	1. Rock Type: pillow basalt, altered 2. Size: 17x12x6 3. Shape / Angularity: subangular 4. Color of cut surface: tan / brown 5. Texture / Vesicularity: massive, 3% vesicles 6. Phenocrysts: iddingsite: 2%, see #4; plag: 1%, see #4; pyx: <1% see #4 7. Matrix: similar to #5 8. Secondary Minerals: similar to #11 9. Encrustations: similar to #11 10. Comment:				x			
SO208 DR21-15	1. Rock Type: pillow basalt, altered 2. Size: 22x13x9 3. Shape / Angularity: subangular 4. Color of cut surface: tan and brown 5. Texture / Vesicularity: massive, 2% vesicles 6. Phenocrysts: iddingsite: 1%, see #4; plag: <1% see #4; pyx. <1%, see #4 7. Matrix: mostly pyx, also plag, altered 8. Secondary Minerals: iddingsite 9. Encrustations: <10mm Mn, some glass 10. Comment:			5	x			
SO208 DR21-16	1. Rock Type: pillow basalt lightly altered 2. Size: 17x13x8 3. Shape / Angularity: subangular 4. Color of cut surface: dark grey, light grey 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: iddingsite: 2%, see #4; plag: <1%, needle-like, fresh; pyx: <1%, fresh 7. Matrix: iddingsite, plag, pyx (main phase) 9. Encrustations: 10mm Mn 10. Comment: similar to #8	x	x	3-4				
SO208 DR21-17	1. Rock Type: pillow basalt, light altered 2. Size: not determined 3. Shape / Angularity: subangular 4. Color of cut surface: grey, tan 5. Texture / Vesicularity: massive, 2% vesicles 6. Phenocrysts: iddingsite: 2% see #4; plag: <1%, see #4; pyx: <1%, see #4 7. Matrix: similar to #16 8. Secondary Minerals: iddingsite 9. Encrustations: <1mm Mn 10. Comment:	x		3-4				
SO208 DR21-18	1. Rock Type: pillow basalt, altered 2. Size: not determined 3. Shape / Angularity: subangular 4. Color of cut surface: tan, brown, grey 5. Texture / Vesicularity: massive, 12% vesicles, 20% filled 6. Phenocrysts: iddingsite: 2%, see #4; plag: 2%, see #4; pyx: <1%, see #4 7. Matrix: iddingsite, plag, pyx 8. Secondary Minerals: iddingsite 9. Encrustations: <1mm Mn 10. Comment:	x		4				

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR21-19	1. Rock Type: pillow basalt, lightly altered 2. Size: 19x15x10 3. Shape / Angularity: subangular 4. Color of cut surface: tan 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: similar to #16 7. Matrix: altered plag, pyx, submm 8. Secondary Minerals: iddingsite 9. Encrustations: <10mm Mn 10. Comment:			3-4				
SO208 DR21-20	1. Rock Type: pillow basalt, altered 2. Size: not determined 3. Shape / Angularity: subangular 4. Color of cut surface: tan, grey 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: iddingsite: 1%, see #4; plag: 2%, fresh to altered, needle-like; pyx: <1%, fresh to altered 10. Comment: similar to #18			4-5				
SO208 DR21-21	1. Rock Type: volcaniclastic 2. Size: 15x12x11 3. Shape / Angularity: subangular, basaltic clasts subangular to rounded 4. Color of cut surface: basalt grey with white, brown, orange rims, interstitial material is a spectrum of tan to brown andalusite 5. Texture / Vesicularity: metamic; interstitial minerals (pyx, plag?) appear to be cemented by cc (cc has undergone varoius degrees of alteration), highly altered to altered, grainsize difficult to distinguish 6. Phenocrysts: clasts range from cm to submm, including basalt and glass breccia, pyx occurs as phenocrysts 9. Encrustations: 10mm Mn and glass 10. Comment:							

SO208 TVG22
Description of Location and Structure: "Top of smnt"

TVG on bottom	UTC 22/07/10 19:01hrs, lat 10°35,45'N, long 88°49,99'W, depth 2634m
TVG off bottom	UTC 22/07/10 19:32hrs, lat 10°35,59'N, long 88°50,17'W, depth 2708m
total volume:	few rocks and sediment
Comments:	basaltic pillow fragments, some with fresh glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 TVG22-1	1. Rock Type: pillow basalt, highly altered 2. Size: 10x12x11 3. Shape / Angularity: subangular 4. Color of cut surface: light grey, tan 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: iddingsite: 3%, submm; plag: fresh to highly altered, mm to submm, 5%; pyx: <1%, fresh 7. Matrix: highly altered, plag, pyx, submm 8. Secondary Minerals: iddingsite, 2nd min. in cracks 9. Encrustations: mm glass and Mn 10. Comment: large alteration gradient increasing towards center of rock	x		4-5	x		EMP	
SO208 TVG22-2	1. Rock Type: pillow basalt, highly altered 2. Size: 11x8x7 3. Shape / Angularity: subangular 4. Color of cut surface: light grey, tan 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: pyx: fresh to altered, submm, 1%; iddingsite: <1%, submm 7. Matrix: plagand pyx, mm to submm 8. Secondary Minerals: pockets of high alteration and cracks 9. Encrustations: Mn 10. Comment: glassy basaltic chunks, altered, subcm but greater than mm	x		3-5				
SO208 TVG22-3	1. Rock Type: pillow basalt, altered 2. Size: 10x9x1 3. Shape / Angularity: subangular 4. Color of cut surface: light grey tan 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: iddingsite: 1%, see #1; plag: 3%, see #1; pyx. <1%, see #1 7. Matrix: similar tp #2 8. Secondary Minerals: iddingsite 9. Encrustations: Mn + glass 10. Comment:	x		3-4	x		EMP	
SO208 TVG22-4	1. Rock Type: pillow basalt 2. Size: 10x8x6 3. Shape / Angularity: subangular 4. Color of cut surface: light + dark grey 5. Texture / Vesicularity: massive, 4% vesicles 6. Phenocrysts: iddingsite: mm to submm 7. Matrix: pyx, plag, iddingsite, submm 8. Secondary Minerals: iddingsite 9. Encrustations: Mn 10. Comment:	x	x	2-3				

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 TVG22-5	1. Rock Type: pillow basalt 2. Size: 9x6x5 6. Phenocrysts: iddingsite: 1% 8. Secondary Minerals: 2nd min. in larger cracks 9. Encrustations: mm glass + Mn 10- Comments: similar to #1			4-5	x		EMP	
SO208 TVG22-6	1. Rock Type:pillow basalt 2. Size: 12x7x5 3. Shape / Angularity: subangular 4. Color of cut surface: tan/brown grey 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: iddingsite 8. Secondary Minerals: 2nd min. in cracks and between rim and rock 9. Encrustations: mm thick glass and Mn 10. Comment: similar to #1			4-5	x		EMP	
SO208 TVG22-7	1. Rock Type: pillow basalt 2. Size: 11x7x6 3. Shape / Angularity: subangular 6. Phenocrysts: iddingsite: 1%, see #1; pyx: 1%, see #1 7. Matrix: similar to #2 9. Encrustations: cm thick glass and Mn 10. Comment: similar to #6			5	x		EMP	
SO208 TVG22-8	1. Rock Type: similar to #1 2. Size: 6x5x4 6. Phenocrysts: iddingsite: 1%, see #1 7. Matrix: similar to #2 9. Encrustations: mm glass and Mn 10. Comment: simialr to #6			4-5	x		EMP	
SO208 TVG22-9	1. Rock Type: similar to #1 2. Size: 9x4x3 6. Phenocrysts: iddingsite: 1%, see #1; plag: <1%, see #1; Ol: <1% fresh 7. Matrix: similar to #1 8. Secondary Minerals: iddingsite 9. Encrustations: similar to #7 10. Comment: similar to #6				x		EMP	
SO208 TVG22-10	1. Rock Type: similar to #1 2. Size: 9x7x5 6. Phenocrysts: iddingsite: 2%, see #1; pyx: 1%, see #1 7. Matrix: plag, pyx, iddingsite, submm 9. Encrustations: mm thick glass and Mn 10. Comment: similar to #6			3-4	x		EMP	
SO208 TVG22-11	1. Rock Type: similar to #1 2. Size: 18x15x11 3. Shape / Angularity: subangular 4. Color of cut surface: tan / brown 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: highly altered iddingsite, 2% 7. Matrix: similar to #1 8. Secondary Minerals: similar to #9 9. Encrustations: <1mm Mn 10. Comment:			5-6				
SO208 TVG22-12-X	10. Comment: 6 samples similar to #6-#11 for archive						archive	

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 TVG22-13-X	10. Comment: uncut rocks for archive						archive	

SO208 DR23 "Bend fault Seamount"	
Dredge on bottom	UTC 23/07/10 03:01hrs, lat 10°46,19'N, long 87°53,51'W, depth 1838m
Dredge off bottom	UTC 23/07/10 03:57hrs, lat 10°45,91'N, long 87°53,75'W, depth 1735m
total volume:	1/3 full
Comments:	lava fragments, some are quite large

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR23-1	1. Rock Type: volcanic, fresh lava, no signs of alteration 2. Size: 44x33x30 3. Shape / Angularity: rounded - subangular 4. Color of cut surface: dry: light grey 5. Texture / Vesicularity: porphyric, 5% vesicles, partly filled 6. Phenocrysts: fsp: platty, fresh, mm; pyx: blocky, fresh 7. Matrix: microcrystallin, fsp + pyx, submm-mm 9. Encrustations: thin Mn-coating 10. Comment: very fresh sample, some pieces taken for archive	x	x	1-2				
SO208 DR23-2	1. Rock Type: volcanic, fresh - slightly altered 2. Size: 30x18x15 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey, slight tan 5. Texture / Vesicularity: porphyric, <1% vesicles partly filled 6. Phenocrysts: pyx: platty, partly fresh, submm-mm; fsp: needle-like, submm-mm 7. Matrix: microcrystalline, submm-mm, fsp, pyx 8. Secondary Minerals: partly oxidized 9. Encrustations: thin Mn-coating 10. Comment:	x	x					
SO208 DR23-3	1. Rock Type: volcanic, slightly altered 2. Size: 30x21x16 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey, slight tan 5. Texture / Vesicularity: porphyric, 10% vesicles partly filled 6. Phenocrysts: similar to #1-#2, Ol: partly oxidized 7. Matrix: similar to #1-#2 8. Secondary Minerals: 2nd min. due to alteration of Ol 9. Encrustations: Mn coating 10. Comment:	x	x					
SO208 DR23-4	1. Rock Type: volcanic, similar to #1-#2 2. Size: 29x22x14 10. Comment: very similar to sample #1 and #2	x						
SO208 DR23-5	1. Rock Type: volcanic, slightly altered, glassy rim 2. Size: 16x11x10 3. Shape / Angularity: angular 4. Color of cut surface: dry. Light grey 5. Texture / Vesicularity: porphyric with px (fsp, Ol, pyx) 6. Phenocrysts: Ol partly altered; fsp+pyx see #1 7. Matrix: microcrystalline, submm-mm, fsp, pyx 8. Secondary Minerals: alteration of Ol 9. Encrustations: Mn coating, very thin 10. Comment: slightly altered volcanic rock with glassy rim and chilled zone, glass relatively fresh, px of fsp, pyx in rim, chilled zone and inner part	x	x	2	x			
SO208 DR23-6	1. Rock Type: volcanic, pillow with volcaniclastic, altered 2. Size: 41x35x23 3. Shape / Angularity: irregular shape, angular 4. Color of cut surface: dark grey (fresh glass), yellow (matrix) 5. Texture / Vesicularity: breccia like, >7% vesicles 7. Matrix: palagonite 9. Encrustations: Mn crust 10. Comment: pillow fragment with thick glassy crust on top, crust is a breccia with fresh glass and palagonite	x			x			

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR23-7	1. Rock Type: pillow fragment with glassy crust, fairly fresh 2. Size: 8x7x5 3. Shape / Angularity: subangular 4. Color of cut surface: dry: glass: black; palagonite: orange brown 10. Comment: sample was taken because of glass crust				x			
SO208 DR23-8	1. Rock Type: pillow fragment, partly glass, strong altered 2. Size: 18x15x9 3. Shape / Angularity: angular 4. Color of cut surface: dry: dark grey tan 5. Texture / Vesicularity: porphyric with px (fsp, pyx, Ol), <1% vesicles 6. Phenocrysts: fsp: flat, platty, partly altered 7. Matrix: submm-mm, microcrystalline 8. Secondary Minerals: 2nd min. due to alteration of Ol and fsp 9. Encrustations: Mn-coating 10. Comment: fsp rich at margin of sample, chilled zone of glass, partly fresh, mostly altered							
SO208 DR23-9	1. Rock Type: pillow fragment with glassy margin 2. Size: 17x15x9 3. Shape / Angularity: rounded 4. Color of cut surface: dark grey with tan 5. Texture / Vesicularity: porphyric with <3% vesicles 6. Phenocrysts: pyx 7. Matrix: microcrystalline, submm-mm 8. Secondary Minerals: 2nd min. due to alteration 9. Encrustations: thin Mn crust 10. Comment: similar to sample #4, glassy crust with partly fresh glass	x						
SO208 DR23-1-X	1. Rock Type: fresh basalt 10. Comment: pieces of sample #1						archive	
SO208 DR23-10-X	1. Rock Type: similar to sample #1-#5 2. Size: 19x18x12						archive	
SO208 DR23-11-X	1. Rock Type: similar to sample #1-#5 2. Size: 20x16x13						archive	

SO208 DR24
Description of Location and Structure: "Bend fault Seamount", 1,5nm SE of DR23 at top of smnt along ist NE slope

Dredge on bottom	UTC 23/07/10 05:45hrs, lat 10°45,41'N, long 87°52,42'W, depth 1702m
Dredge off bottom	UTC 23/07/10 08:13hrs, lat 10°45,40'N, long 87°52,39'W, depth 1730?m
total volume:	100% full
Comments:	lava fragments, probably pillows

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR24-1	1. Rock Type: pillow basalt, fresh 2. Size: 35x30x20 3. Shape / Angularity: subangular 4. Color of cut surface: dark grey 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: pyx: <1% submm, fresh; Ol: <1%, submm, fresh 7. Matrix: submm, plag+pyx 8. Secondary Minerals: cc in cracks 9. Encrustations: <1mm Mn	x	x	1				

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR24-2	1. Rock Type: pillow basalt 2. Size: 34x23x14 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: plag: <1%, fresh, submm 9. Encrustations: <10mm Mn 10. Comment: similar to #1	x	x	1				
SO208 DR24-3	1. Rock Type: pillow basalt, fresh 2. Size: 20x17x9 6. Phenocrysts: plag: fresh, 2%, mm-submm; pyx: fresh, <1%, submm 7. Matrix: submm, pyx, plag 8. Secondary Minerals: cc in cracks 9. Encrustations: up to 10mm glass+Mn crust 10. Comment: similar to #1 but contains glassy vesicular globules	x		2				
SO208 DR24-4	1. Rock Type: pillow basalt, fresh 2. Size: 17x10x11 3. Shape / Angularity: similar to #1 4. Color of cut surface: dark and light grey 5. Texture / Vesicularity: massive, 7% vesicles 7. Matrix: plag+pyx, submm, fresh 8. Secondary Minerals: cc in large vesicles 9. Encrustations: similar to #3 10. Comment: similar to #3	x		2				
SO208 DR24-5	1. Rock Type: pillow basalt 2. Size: 14x11x9 10. Comment: very similar to #4	x		1-2				
SO208 DR24-6	1. Rock Type: pillow basalt 2. Size: 35x30x20 6. Phenocrysts: plag: mm-submm, 1%, fresh to slightly altered; pyx: submm, 2%, fresh 7. Matrix: submm, plag, pyx 8. Secondary Minerals: cc in cracks 9. Encrustations: up to 40mm, glassy brecciated crust + <1mm Mn 10. Comment: similar to#1	x	x	2				
SO208 DR24-7	1. Rock Type: pillow basalt 2. Size: 20x14x13 3. Shape / Angularity: similar to #1 4. Color of cut surface: brown, light grey, dark grey 5. Texture / Vesicularity: massive, 2% vesicles 6. Phenocrysts: iddingsite: fresh, 3%, submm; pyx: fresh, 1% submm 7. Matrix: plag+pyx, fresh to altered 8. Secondary Minerals: cc in vesicles, iddingsite 9. Encrustations: up to 20mm Mn + glass 10. Comment:			4	x			
SO208 DR24-8	1. Rock Type: pillow basalt 2. Size: 18x12x10 5. Texture / Vesicularity: conical, 5% vesicles 6. Phenocrysts: iddingsite: 3%, fresh, mm-submm; pyx: 1%, fresh, submm 7. Matrix: plag+pyx, fresh to altered 8. Secondary Minerals: cc in cracks, some Mn-rich material migrated from crust into rock 9. Encrustations: mm Mn + glass 10. Comment: similar to #7	x	x	3-4				
SO208 DR24-9	1. Rock Type: pillow basalt 2. Size: 10x9x6 3. Shape / Angularity: similar to #1 4. Color of cut surface: tan and grey 5. Texture / Vesicularity: massive, 5% vesicles 6. Phenocrysts: iddingsite: 5%, fresh, submm-mm; pyx: <1%, submm, fresh; plag: 1%, mm-submm, fresh 7. Matrix: similar to #8 8. Secondary Minerals:iddingsite 9. Encrustations: similar to #7 10. Comment: similar to #3			3-4	x			

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR24-10	1. Rock Type: pillow basalt 2. Size: 15x7x6 3. Shape / Angularity: similar to #1 4. Color of cut surface: brown/tan 5. Texture / Vesicularity: massive, 5% vesicles 6. Phenocrysts: similar to #9 7. Matrix: plag+pyx, highly altered 8. Secondary Minerals: similar to #7 9. Encrustations: similar to #7 10. Comment:			4	x			
SO208 DR24-11	1. Rock Type: similar to #1 2. Size: 7x5x3 9. Encrustations: similar to #7 10. Comment: similar to #10				x			
SO208 DR24-12	1. Rock Type: similar to #1 2. Size: 6x5x5 5. Texture / Vesicularity: massive, 7% vesicles 6. Phenocrysts: iddingsite: 3% fresh, submm 7. Matrix: similar to#8 8. Secondary Minerals: iddingsite 10. Comment: similar to #7			3-4	x			
SO208 DR24-13-VC	1. Rock Type: coarse vc breccia 2. Size: 19x19x16 3. Shape / Angularity: angular - irregular 4. Color of cut surface: tan to grey 5. Texture / Vesicularity: clasts similar to #9 7. Matrix: fine basaltic - palagonitic shards and clacite cement and open spaces 9. Encrustations: <1mm Mn 10. Comment: poss. fresh glass along some of the clast margins, clasts <1mm to 10mm, angular and subangular and splinter shaped, poorly sorted, no bedding	x		3-4	poss			
SO208 DR24-14-VC	1. Rock Type: similar to #13vc 2. Size: 15x12x10 10. Comment: coarse grained clasts prevail abundant cc-cementation							
SO208 DR24-15-VC	1. Rock Type: similar to #13vc 2. Size: 14x9x9 10. Comment: clasts up to 30mm							
SO208 DR24-16-VC	1. Rock Type: similar to #13vc 2. Size: 10x7x4 10. Comment: clasts up to 15mm							
SO208 DR24-17-S	1. Rock Type: carbonate sediment 2. Size: 10x6x6 10. Comment: indurated calcareous sediment minor proportions of vc							

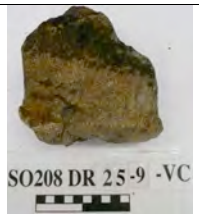
Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR24-18-M	1. Rock Type: manganese nodule 2. Size: 10x8x6							
SO208 DR24-19	1. Rock Type: similar to #1 2. Size: 16x14x10 5. Texture / Vesicularity: massive, <1% vesicles 8. Secondary Minerals: similar to #4, 2nd min in vesicles (Mn?) 9. Encrustations: <10mm Mn 10. Comment: similar to #4	x		1				
SO208 DR24-20	1. Rock Type: similar to #1 2. Size: 24x17x9 5. Texture / Vesicularity: similar to #19 9. Encrustations: similar to #19 10. Comment: similar to #4	x	x	1				
SO208 DR24-21-X	1. Rock Type: similar to #19-#20 2. Size: 20x18x9						archive	
SO208 DR24-22-X	1. Rock Type: similar to #19-#20 2. Size: 28x15x12						archive	
SO208 DR24-23-X	1. Rock Type: similar to #19-#20 2. Size: 16x10x9						archive	
SO208 DR24-24-X	1. Rock Type: similar to #13 2. Size: 13x11x9						archive	
SO208 DR24-25-X	1. Rock Type: pillow basalt 2. Size: 12 cut pieces 3. Shape / Angularity: subangular 4. Color of cut surface: tan/brown/light grey 5. Texture / Vesicularity: 1% vesicles, massive 6. Phenocrysts: iddingsite, plag, pyx 7. Matrix: iddingsite, plag, pyx 8. Secondary Minerals: cc in veins 9. Encrustations: thin Mn 10. Comment:						archive	

Appendix IIa (Rock Description Leg 1)

SO208 DR25								
Dredge on bottom	UTC 23/07/10 10:20hrs, lat 10°47,46'N, long 87°50,46'W, depth 2574m							
Dredge off bottom	UTC 23/07/10 11:40hrs, lat 10°47,16'N, long 87°50,79'W, depth 2220m							
total volume:	1/5 full							
Comments:	lava fragments							
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR25-1	1. Rock Type: pillow basalt, fresh 2. Size: 20x17x13 3. Shape / Angularity: subangular 4. Color of cut surface: grey 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: Ol, iddingsite, <1%, fresh, submm-mm 7. Matrix: microcrystalline, plag, pyx, fresh 8. Secondary Minerals: iddingsite 9. Encrustations: <1mm Mn	x	x	1				
SO208 DR25-2	1. Rock Type: pillow basalt 2. Size: 27x23x20 6. Phenocrysts: iddingsite: <1%, fresh, submm; plag: 2%, fresh to altered, mm-submm	x	x	1	x		EMP	
SO208 DR25-3	1. Rock Type: pillow basalt 2. Size: 12x9x5 5. Texture / Vesicularity: massive, 3% vesicles 6. Phenocrysts: ol?: <1%, fresh, submm; iddingsite: <1%, fresh, submm; pyx: <1%, fresh, submm 7. Matrix: microcrystalline, pyx, plag, fresh 8. Secondary Minerals: iddingsite 9. Encrustations: <10mm Mn and glass	x		1				
SO208 DR25-4	1. Rock Type: pillow basalt 2. Size: 18x14x10 5. Texture / Vesicularity: massive, 2% vesicles 6. Phenocrysts: Ol: fresh to altered, 3%, mm; iddingsite: <1%, fresh, submm; pyx: <1%, fresh, mm 7. Matrix: submm, pyx, plag, fresh 8. Secondary Minerals: iddingsite 9. Encrustations: cm glass and Mn 10. Comment: similar to #1	x		1	x		EMP	
SO208 DR25-5	1. Rock Type: pillow basalt 2. Size: 21x16x10 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: Ol: altered, 5%, submm 7. Matrix: Ol altered, pyx, plag 8. Secondary Minerals: perhaps Ol has been altered into another mineral 9. Encrustations: <1mm Mn 10. Comment: similar to #1		x	3				
SO208 DR25-6	1. Rock Type: pillow basalt 2. Size: 10x9x7 3. Shape / Angularity: subangular 4. Color of cut surface: grey, tan, brown 5. Texture / Vesicularity: massive, 2% vesicles 6. Phenocrysts: pyx: 1%, fresh, mm to submm; iddingsite: <1%, fresh, submm 7. Matrix: plag, pyx, submm, fresh to altered 8. Secondary Minerals: 9. Encrustations: cm glass and Mn 10. Comment: foreign clasts incorporated in rock				x			
SO208 DR25-7	1. Rock Type: pillow basalt 2. Size: 11x10x8 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: iddingsite: <1%, submm, slightly altered 7. Matrix: plag, pyx, iddingsite 8. Secondary Minerals: iddingsite 9. Encrustations: 4mm glass and Mn 10. Comment: similar to #1			3	x			

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR25-8-VC	1. Rock Type: volcaniclast 2. Size: 20x15x11 - subangular - basaltic clasts are fresh to altered - rims of fresh basalt are altered (looks like cc) - altered basaltic clasts don´t have rims - interstitial grey material appear fine grained and well sorted - clasts are poorly sorted (sizes range in cm) - pourous overall - clasts appear o be same composition as other samples in this dredge, except pyx-phenos are larger than elsewhere - clasts are more altered than other samples in this dredge - pyx-phenos in basaltic clasts is cm and smaller - matrix is submm	x						
SO208 DR25-9-VC								
SO208 DR25-10-VC	1. Rock Type: volcaniclast 2. Size: 29x20x15 - well sorted - grains cm to mm - fresh glass - palagonite - coarsens towards rim - glass rimed by submm alteration - green and red alteration							

SO208 DR26
Description of Location and Structure: "Little Bend Seamount"; 9nm SE of "Bend fault Seamount I", small round structure, NW-facing slope

Dredge on bottom	UTC 23/07/10 14:52hrs, lat 10°41,12'N, long 87°45,52'W, depth 2995m
Dredge off bottom	UTC 23/07/10 15:40hrs, lat 10°40,91'N, long 87°45,28'W, depth 2680m
total volume:	few rocks
Comments:	appear to be fragments of 1 pillow

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR26-1	1. Rock Type: basaltic rock, fresh 2. Size: 20x16x12 3. Shape / Angularity: highly angular, irregular 4. Color of cut surface: grey 5. Texture / Vesicularity: aphyric, dense, cryptocrystalline 8. Secondary Minerals: palagonite on glassy rims, alteration along cracks 10. Comment: cross section through pillow with glassy (fresh?) margin and overlying flakes of glass; flakes: up to 3mm thick, 15x15mm in dimension, consisting of palagonitized glass, flakes are arranged almost vertical to pillow surface, cemented with calcite and also mud as matrix. thickness of "flake"-zone = 60mm			1	poss.			
SO208 DR26-2	1. Rock Type: similar to #1 but without glassy-flake crust 2. Size: 11x10x9	x	x	1				
SO208 DR26-3	1. Rock Type: similar to #1 but without flakes 2. Size: 13x10x9 10. Comment: glass chips-sample	x		1			EMP	
SO208 DR26-4	1. Rock Type: similar to #3 2. Size: 14x7x6			1				

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR26-5	1. Rock Type: similar to #3 2. Size: 10x9x4			1				
SO208 DR26-6	1. Rock Type: similar to #1 2. Size: 11x7x4 10. Comment: flake-section fragile - no thin section was made			6				
SO208 DR26-7	1. Rock Type: similar to #6 2. Size: 12x6x4			6				
SO208 DR26-8-X	1. Rock Type: pillow without the flakes 2. Size: 25x17x14 10. Comment: for archive				poss.			

SO208 MUC27 **Description of Location and Structure: Shelf**	
MUC on bottom	UTC 23/07/10 23:21hrs, lat 11°24,92'N, long 86°51,99'W, depth 132m
MUC off bottom	UTC 23/07/10 23:23hrs, lat 11°24,92'N, long 86°51,99'W, depth 132m
total volume:	12 of 12
Comments:	

SO208 MUC28 **Description of Location and Structure: Shelf**	
MUC on bottom	UTC 24/07/10 02:01hrs, lat 11°08,94'N, long 86°33,93'W, depth 162m
MUC off bottom	UTC 24/07/10 02:01hrs, lat 11°08,94'N, long 86°33,93'W, depth 162m
total volume:	11 of 12
Comments:	

SO208 DR29 **Description of Location and Structure: "Schrippe"; base of NW-flank cut by NW-SE striking bend fault**	
Dredge on bottom	UTC 24/07/10 09:12hrs, lat 10°25,45'N, long 87°14,65'W, depth 3400m
Dredge off bottom	UTC 24/07/10 10:05hrs, lat 10°25,15'N, long 87°14,80'W, depth 3109m
total volume:	empty
Comments:	

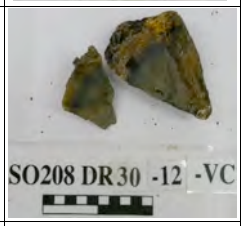
Appendix IIa (Rock Description Leg 1)

SO208 DR30
Description of Location and Structure: "Schrippe"; 800m upslope of DR29 at steeper slope

Dredge on bottom	UTC 24/07/10 12:19hrs, lat 10°24,61'N, long 87°14,79'W, depth 2848m
Dredge off bottom	UTC 24/07/10 13:49hrs, lat 10°24,23'N, long 87°15,10'W, depth 2400m
total volume:	1/2 full
Comments:	pillows, prob. all same , 1 vc sample, 3 pieces for archive

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR30-1	1. Rock Type: pillow basalt, fresh 2. Size: 36x21x19 3. Shape / Angularity: subangular 4. Color of cut surface: grey 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: pyx: submm, fresh, 1% 7. Matrix: plag, pyx, submm 8. Secondary Minerals: altered cc in vesicles 9. Encrustations: <1mm Mn 10. Comment:	x	x	1	x		EMP	
SO208 DR30-2	1. Rock Type: pillow basalt 2. Size: 45x28x19 3. Shape / Angularity: angular to subangular 4. Color of cut surface: grey 5. Texture / Vesicularity: massive, 5% vesicles 6. Phenocrysts: pyx: <1%, submm, fresh to slightly altered 9. Encrustations: 10mm glassy crust 10. Comment: similar to #1	x	x	1-2	x		EMP	
SO208 DR30-3	1. Rock Type:pillow basalt 2. Size: 18x19x11 5. Texture / Vesicularity: massive, 3% vesicles 6. Phenocrysts: similar to #2 7. Matrix: fresh to slightly altered 8. Secondary Minerals: altered c.c in vesicles 9. Encrustations: up to cm thick glass crust 10. Comment: similar to #1 but contains vesicular glassy pockets	x	x	1				no picture
SO208 DR30-4	1. Rock Type: pilow basalt 2. Size: 33x24x21 7. Matrix: similar to #3 8. Secondary Minerals: altered cc in vesicles and cracks 9. Encrustations: up to 1 cm glass and rim 10. Comment: similar to #1	x	x	2			EMP	
SO208 DR30-5	1. Rock Type: pillow basalt 2. Size: 28x19x10 5. Texture / Vesicularity: massive, 8% vesicles 7. Matrix: submm, pyx, plag, light - very altered 8. Secondary Minerals: sediment/ooze in vesicles, may have altered to 2nd min. 9. Encrustations: similar to #2 10. Comment: similar to #3, nice pillow tube piece - archive	x	x	2-3				
SO208 DR30-6	1. Rock Type: pillow basalt 2. Size: 32x21x12 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: similar to #2 7. Matrix: similar to #2 8. Secondary Minerals: cc in vesicles and cracks 10. Comment: similar to #3	x						
SO208 DR30-7	1. Rock Type: pilow basalt 2. Size: 39x28x19 5. Texture / Vesicularity: massive, <1% versicles 10. Comment: similar to #3 but pockets are altered	x	x	3				
SO208 DR30-8	1. Rock Type: pillow basalt 2. Size: 29x28x19 3. Shape / Angularity: subangular to rounded 4. Color of cut surface: tan/orange/brown 5. Texture / Vesicularity: massive, 7% vesicles 7. Matrix: similar to #5 8. Secondary Minerals:some plag bright orange cc in cracks 9. Encrustations: mm of glass	x		3-4	x		EMP	

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR30-9	1. Rock Type: pillow basalt 2. Size: 30x29x25 3. Shape / Angularity: 4. Color of cut surface: tan/grey 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: iddingsite: fresh, 3%, submm 8. Secondary Minerals: cc along cracks 10. Comment: similar to #3			4	x		EMP	
SO208 DR30-10	1. Rock Type: pillow basalt 2. Size: 16x15x10 3. Shape / Angularity: rounded 4. Color of cut surface: tan, grey 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: iddingsite: fresh, 1%, submm; pyx: fresh, <1%, submm 7. Matrix: similar to #5 8. Secondary Minerals: cc in cracks, vesicles; iddingsite 10. Comment: similar to #3			4	x			
SO208 DR30-11-VC	1. Rock Type: volcaniclastic 2. Size: 12x11x10 clasts: basaltic, angular to subangular, fine grained, glassy, all appear to be related, fresh, cm in size, poorly sorted, no grading rim: around rims are clats of cc fresh to altered	x						
SO208 DR30-12-VC	1. Rock Type: vc on rim of basalt 2. Size: 10x9x6 - continuous rim around basalt of altered cc - grains are cm to mm - poorly sorted - no grading - cc is light to very altered							
SO208 DR30-A1	1. Rock Type: similar to #1 2. Size: 13x9x8 3. Shape / Angularity: subangular 4. Color of cut surface: tan/brown 5. Texture / Vesicularity: massive, 2% vesicles 6. Phenocrysts: iddingsite: mm to submm, fresh, 1%; pyx: submm, fresh, <1% 7. Matrix: pyx, plag, submm, altered 8. Secondary Minerals: cc in cracks 9. Encrustations: two pillows group toward each other, rims, mm glassy 10. Comment:						archive	no picture
SO208 DR30-A2	1. Rock Type: pillow basalt 2. Size: 16x13x12 10. Comment: not cut open						archive	no picture

Appendix IIa (Rock Description Leg 1)

SO208 DR31
Description of Location and Structure: "Ammonit"; smnt 30nm S of DR30, circular shaped smnt, dredge on NE-facing slope

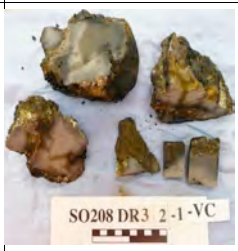
Dredge on bottom	UTC 24/07/10 19:47hrs, lat 09°54,17'N, long 87°16,08'W, depth 3038m
Dredge off bottom	UTC 24/07/10 21:10hrs, lat 09°53,97'N, long 87°16,50'W, depth 2584m
total volume:	1/3 full
Comments:	

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR31-1	1. Rock Type: pillow basalt 2. Size: 25x16x14 3. Shape / Angularity: subangular 4. Color of cut surface: grey & tan 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: iddingsite: fresh, 1%, submm; pyx: altered, <1%, submm 7. Matrix: plag, pyx, fresh to slightly altered 8. Secondary Minerals: cc in cracks, 9. Encrustations: cm thick Mn + glass 10. Comment:	x	x	1-3	x		EMP	
SO208 DR31-2	1. Rock Type: pillow basalt 2. Size: 24x16x10 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: pyx: <1%, submm, fresh to altered 7. Matrix: pyx, plag, submm 9. Encrustations: <10mm glass and Mn 10. Comment: similar to #1	x	x	1-2	x		EMP	
SO208 DR31-3	1. Rock Type: pillow basalt 2. Size: 19x15x9 3. Shape / Angularity: angular 4. Color of cut surface: light grey, dark grey 5. Texture / Vesicularity: massive, < 1% vesicles 6. Phenocrysts: Ol: fresh, submm, <1%; pyx: fresh, mm to submm, 3% 7. Matrix: plag, pyx, microcrystalline 8. Secondary Minerals: altered, cc in cracks 9. Encrustations: <1mm gl and Mn 10. Comment:	x	x		x			
SO208 DR31-4	1. Rock Type: pillow basalt 2. Size: 24x23x14 3. Shape / Angularity: rounded 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: pyx: 3%, cm to submm, fresh 7. Matrix: similar to #3 8. Secondary Minerals: altered, cc in cracks 9. Encrustations: cm thick, glass and Mn 10. Comment: similar to #1	x		2-3	x		EMP	
SO208 DR31-5	1. Rock Type: pillow basalt 2. Size: 26x18x17 3. Shape / Angularity: rounded 5. Texture / Vesicularity: massive, <1% vesicles 9. Encrustations: similar to #4 10. Comment: similar to #1 but glassy basaltic vesicular pockets	x		2-3			EMP	
SO208 DR31-6	1. Rock Type: pillow basalt 2. Size: 14,5x13,5x11 3. Shape / Angularity: angular 6. Phenocrysts: pyx: submm, fresh, 7% 9. Encrustations: <1mm glass and Mn 10. Comment: similar to #1	x	x	2-4				
SO208 DR31-7	1. Rock Type: pillow basalt 2. Size: 20x14x10 4. Color of cut surface: similar to #3 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: iddingsite: <1%, fresh, submm 10. Comment: similar to #1	x		2-3				
SO208 DR31-8	1. Rock Type: pillow basalt 2. Size: 33x17x7 3. Shape / Angularity: subangular 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: pyx: mm to submm, fresh, <1% 7. Matrix: very altered plag + pyx 9. Encrustations: 40mm thick glass and Mn 10. Comment: similar to #1			5	x			

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR31-9	1. Rock Type: pillow basalt 2. Size: 15x8x7 4. Color of cut surface: dank and light grey 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: pyx: 1%, submm, fresh 9. Encrustations: cm glass +Mn 10. Comment: similar to #1			2-4				
SO208 DR31-10	1. Rock Type: pillow basalt 2. Size: 10x9x5 4. Color of cut surface: dark and light grey 5. Texture / Vesicularity: massive, <1% vesicles 6. Phenocrysts: pyx: 1%, fresh to altered, mm 10. Comment: similar to #1							
SO208 DR31-11-M	1. Rock Type: manganese 2. Size: 18x13x7 3. Shape / Angularity: amorphus 4. Color of cut surface: black 5. Texture / Vesicularity: layered							

SO208 DR33 **Description of Location and Structure: "Guardian Seamount", smnt 25nm SWS of DR31, NW-flank below "flat top area, Southern part of top area occupied by cone**	
Dredge on bottom	UTC 25/07/10 03:00hrs, lat 9°38,46'N, long 87°40,50'W, depth 2640m
Dredge off bottom	UTC 25/07/10 04:19hrs, lat 9°38,11'N, long 87°40,23'W, depth 2095m
total volume:	1/3 full
Comments:	pillows and pillow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR32-1-VC	1. Rock Type: volcaniclastic, slightly altered 2. Size: 40x36x24 3. Shape / Angularity: angular 4. Color of cut surface: dry: basalt-dark grey, light grey, tan; vc-dark brown / black (fresh glass), brwon / yellow (palagonite) 5. Texture / Vesicularity: basalt: dense, aphyric, vesicles 20%, amygdales with crystal growth; vc: irregular shape, poorly sorted, varries in sizes, contains fresh glass 6. Phenocrysts: 7. Matrix: palagonite and sediment 8. Secondary Minerals: alteration along cracks within the basalt, altered glass 9. Encrustations: 10. Comment: vc with basalt incorporated, contains fresh glass, is oxidized along cracks and veins	x			x		EMP	
SO208 DR32-2	1. Rock Type: pillow fragment with thin glass crust, medium altered 2. Size: 40x30x23 3. Shape / Angularity: subangular 4. Color of cut surface: dry: dark grey, tan 5. Texture / Vesicularity: aphyric, vesicles >30% 8. Secondary Minerals: Fe-Hydroxide, 2nd min in vesicles 9. Encrustations: thin Mn crust, >2mm 10. Comment: pillow fragment with high amount of vesicles (partly filled with sediment), vesicles are oriented parallel to cooling surface	x	x		x			
SO208 DR32-3	1. Rock Type: similar to #2 2. Size: 60x35x30 10. Comment: very similar to #2	x			x			
SO208 DR32-4	1. Rock Type: pillow fragment with glassy rim, medium altered 2. Size: 30x24x18 3. Shape / Angularity: agular 4. Color of cut surface: dry: light grey, tan 5. Texture / Vesicularity: aphyric, dense, vesicles >10% 6. Phenocrysts: pyx or fsp: platty <1% 7. Matrix: microcrystalline, submm-mm 8. Secondary Minerals: 2nd min. along cracks, 2nd min. as filling of vesicles, Fe-oxide 9. Encrustations: Mn-coating 10. Comment: pillow fragment with thin glassy rim, altered along cracks	x	x		x			

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR32-5	1. Rock Type: similar to #4 2. Size: 22x16x11 10. Comment: similar to #4	x						
SO208 DR32-6	1. Rock Type: pillow fragment glassy (chilled) margin, medium altered 2. Size: 21x15x14 3. Shape / Angularity: angular 4. Color of cut surface: dry: dark grey (chilled margin), light grey, tan 5. Texture / Vesicularity: aphyric, vesicles <1% 6. Phenocrysts: fsp/pyx: platty-blocky, up to 5mm; Ol: altered, <1% 7. Matrix: microcrystalline, submm-mm 8. Secondary Minerals: 2nd min partly filled in vesicles, altered Ol -> iddingsite	x	x	x	(x)			
SO208 DR32-7	1. Rock Type: similar to #6 2. Size: 17x15x8 10. Comment: very similar to #6	x	x	x	(x)			
SO208 DR32-8	1. Rock Type: volcanic, slightly to medium altered 2. Size: 13x10x10 3. Shape / Angularity: rounded 4. Color of cut surface: dry: dark grey, tan 5. Texture / Vesicularity: aphyric, vesicles: 50% 7. Matrix: dense, microcrystalline, submm-mm 8. Secondary Minerals: filling in some vesicles 9. Encrustations: Mn-coating 10. Comment: very rounded, high vesicularity	x						
SO208 DR32-9-VC	1. Rock Type: volcaniclastite, medium - highly altered 2. Size: 10x9x5 3. Shape / Angularity: rounded 4. Color of cut surface: dry: yellow margin around dark grey/black pieces of glass 5. Texture / Vesicularity: aphyric, vesicles <3% 6. Phenocrysts: fsp, pyx 8. Secondary Minerals: 2nd min along margin of pieces of glass 9. Encrustations: Mn coating 10. Comment: vc with high amount of glass, individual glass grains are coated with thin Fe-OH	x						
SO208 DR32-10-M	1. Rock Type: Mn-knodule 2. Size: 13x10x6 3. Shape / Angularity: rounded 4. Color of cut surface: dry: dark brown/blck 10. Comment: contains pieces of glass and maybe ash like material => layered							
SO208 DR32-11-X	1. Rock Type: pillow fragment with glassy crust 2. Size: 44x30x23 10. Comment: similar to sample #3						archive	
SO208 DR32-12-X	1. Rock Type: pillow fragment with glass 2. Size: 15x11x10 10. Comment: similar to sample #4						archive	

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR32-13-X	1. Rock Type: pillow fragment with glass 2. Size: 21x17x14 10. Comment: similar to sample #4 & #5						archive	

SO208 DR33 **Description of Location and Structure: "Kringel", 20nm SW of DR32; smnt with horseshoe shaped crater open to the S, track along Northern flank**	
Dredge on bottom	UTC 25/07/10 09:23hrs, lat 09°24,45'N, long 87°50,42'W, depth 2716m
Dredge off bottom	UTC 25/07/10 11:13hrs, lat 09°24,34'N, long 87°50,38'W, depth 2576m
total volume:	few rocks
Comments:	Mn encrusted basalt fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR33-1	1. Rock Type: pillow breccia with pieces of basalt 2. Size: 38x24x12 3. Shape / Angularity: irregular 4. Color of cut surface: dry: dark grey, light grey, yellow/brown 5. Texture / Vesicularity: breccie: poorly sorted; basalt: aphyric with fsp px, vesicles < 1% 6. Phenocrysts: basalt: fsp/pyx - <1%, fresh - altered, mm 7. Matrix: basalt: microcrystalline, submm-mm 8. Secondary Minerals: palagonite 9. Encrustations: Mn crust 10. Comment: pillow breccia with fresh glass, basalt and palagonite	x			x		EMP	
SO208 DR33-2	1. Rock Type: pillow fragment, slightly altered 2. Size: 10x6x4 3. Shape / Angularity: subangular 4. Color of cut surface: dry: grey with tan 5. Texture / Vesicularity: aphyric, vesicles <1% 6. Phenocrysts: plag/pyx: altered, <2% 7. Matrix: microcrystalline, submm-mm 8. Secondary Minerals: 2nd min. altered pyx 9. Encrustations: Mn coating 10. Comment: small piece of pillow fragment, slightly altered, 2nd min due to alteration of pyx	x						
SO208 DR33-3	1. Rock Type: similar to #2 2. Size: 6x8x7 10. Comment: sample is very similar to sample #2	x						
SO208 DR33-4	1. Rock Type: similar to #2 2. Size: 13x8x4 10. Comment: very similar to sample #2	x						
SO208 DR33-5	1. Rock Type: similar to #2 2. Size: 7x7x4 10. Comment: very similar to sample #2							
SO208 DR33-6	1. Rock Type: similar to #2 2. Size: 8x6x5 10. Comment: similar to sample #2 but rather dense with less px and alteration halo along margin							

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR33-7	1. Rock Type: similar to #2 2. Size: 11x9x6 10. Comment: similar to #2 but highly altered, contains more cracks and veins, almost no fresh px							
SO208 DR33-8	1. Rock Type: similar to #2, highly altered 2. Size: 8x6x6 3. Shape / Angularity: similar to #2 4. Color of cut surface: light grey, yellowish/brown tan 10. Comment: similar to #2 but chilled margin <10mm							
SO208 DR33-9-VC	1. Rock Type: hyaloclastite, chilled margin, volcanic 2. Size: 9x8x6 3. Shape / Angularity: subangular 4. Color of cut surface: light grey, tan 6. Phenocrysts: pyx 7. Matrix: microcrystalline, submm-mm 8. Secondary Minerals: alteration of basalt, palagonite formation 9. Encrustations: Mn-coating 10. Comment: chilled margin <10mm, contains fresh glass	x			x			
SO208 DR33-10-M	1. Rock Type: Mn crust 2. Size: 18x13x4							

SO208 MUC34 **Description of Location and Structure: crater of smnt "Bagel", smnt with central crater-like depression**	
MUC on bottom	UTC 25/07/10 16:17hrs, lat 09°07,51'N, long 87°26,51'W, depth 2625m
MUC off bottom	UTC 25/07/10 16:18hrs, lat 09°07,51'N, long 87°26,51'W, depth 2625m
total volume:	10 tubes
Comments:	ca. 10-15cm surface sediment

SO208 MUC35 **Description of Location and Structure: 3nm E of smnt "Bagel", deep sea plain**	
MUC on bottom	UTC 25/07/10 19:00hrs, lat 09°07,50'N, long 87°23,74'W, depth 3151m
MUC off bottom	UTC 25/07/10 19:02hrs, lat 09°07,50'N, long 87°23,74'W, depth 3151m
total volume:	12 tubes
Comments:	more than 1/2 full

SO208 DR36 **Description of Location and Structure: "Bagel" smnt, NE-flank of a cratered smnt**	
Dredge on bottom	UTC 25/05/10 21:30hrs, lat 09°08,59'N, long 87°25,41'W, depth 2882m
Dredge off bottom	UTC 25/05/10 22:58hrs, lat 09°08,56'N, long 87°25,51'W, depth 2795m
total volume:	1/3 full
Comments:	2 pieces of basalt, otherwise semiconsolidated calcareous sediment and Mn-nodules

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR36-1	1. Rock Type: basaltic pillow 2. Size: 20x17x16 3. Shape / Angularity: subangular 4. Color of cut surface: light grey 5. Texture / Vesicularity: massive, 1% vesicles 6. Phenocrysts: pyx: 7%, mm, fresh to altered 7. Matrix: microcrystalline, plag, pyx, fresh 8. Secondary Minerals: cc in cracks 9. Encrustations: cm glass and Mn	x	x	1				
SO208 DR36-2	1. Rock Type: basaltic pillow 2. Size: 8x7x6 5. Texture / Vesicularity: massive, 3% vesicles 6. Phenocrysts: pyx: fresh, cm, <1% 7. Matrix: pyx, plag, fresh to altered 8. Secondary Minerals: cc in cracks 9. Encrustations: <1mm Mn 10. Comment: similar to #1	x		1-3				

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR36-3-VC	1. Rock Type: volcaniclastic 2. Size: 13x10x4 clasts: basaltic, subangular, fresh basaltic and glassy, mainly black, 1% are grey, angular to rounded, cm to submm, poorly sorted, no grading, no bedding, imbricated matrix: cc, slightly altered and ooze, porous	x						
SO208 DR36-4-VC	1. Rock Type: volcaniclastic 2. Size: 9x8x3 clasts: fresh and glassy basaltic clasts rimed by fresh to altered cc, cm to mm in size, are imbricated, angular to rounded, poorly sorted, no bedding matrix: slightly to very altered cc							
SO208 DR36-5-VC	1. Rock Type: volcaniclastic 2. Size: 13x10x4 clasts: basaltic, subangular, cm to submm, poorly sorted, no grading, fresh, glassy, similar to #1, no bedding, slight imbrication of clasts, more than slightly porous matrix: altered cc and ooze							
SO208 DR36-6	1. Rock Type: compacted sediment 2. Size: 40x36x16 3. Shape / Angularity: rounded to subangular 4. Color of cut surface: tan, green 5. Texture / Vesicularity: carbonaceous sediment, grain size - silt, well sorted, no grading, massive, dentritic oxidation tracks and altered cc in cracks 9. Encrustations: cm Mn crust							
SO208 DR36-7-M	1. Rock Type: manganese nodule 2. Size: 15x15x9 3. Shape / Angularity: rounded 4. Color of cut surface: black 5. Texture / Vesicularity: undulatory layers/rings 6. Phenocrysts: fresh basaltic clasts in center, some rims by altered cc							
SO208 DR36-8-M	1. Rock Type: manganese nodule 2. Size: 14x9x7 3. Shape / Angularity: rounded 4. Color of cut surface: black 5. Texture / Vesicularity: undulatory spiral/rings 10. Comment:							

Appendix IIa (Rock Description Leg 1)

SO208 DR37
Description of Location and Structure: "Ojo" smnt, NE-flank

Dredge on bottom	UTC 26/07/10 03:01hrs, lat 09°22,22'N, long 87°14,73'W, depth 2654m
Dredge off bottom	UTC 26/07/10 04:05hrs, lat 09°22,36'N, long 87°14,99'W, depth 2339m
total volume:	very few rocks
Comments:	pillow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR37-1	1. Rock Type: volcanic, pillow fragment, slightly altered 2. Size: 22x19x14 3. Shape / Angularity: subangular / angular 4. Color of cut surface: light grey with halo, tan 5. Texture / Vesicularity: aphyric, dense, vesicles <1% 7. Matrix: microcrystalline, submm-mm 8. Secondary Minerals: little signs of alteration, alteration halo along margin 9. Encrustations: Mn-coating 10. Comment: pillow fragment, no glass, slight alteration	x	x					
SO208 DR37-2	1. Rock Type: pillow fragment 2. Size: 17x12x9 10. Comment: same material as #1, contains more vesicles, prob. due to dissolution, cracks filled with Mn	x						
SO208 DR37-3	1. Rock Type: pillow fragment 2. Size: 12x9x9 3. Shape / Angularity: subrounded 4. Color of cut surface: dark grey, light grey, tan 5. Texture / Vesicularity: aphyric, dense, vesicles <3% 6. Phenocrysts: fsp, altered 7. Matrix: microcrystalline, submm-mm 8. Secondary Minerals: cracks filled with Mn, some vesicles filled with 2nd min. 9. Encrustations: Mn crust <3mm 10. Comment: similar to #1, pillow fragment with alteration halo along margin, chilled area with glass (partly altered)	x						
SO208 DR37-4	1. Rock Type:pillow fragment 2. Size: 10x8x5 10. Comment: similar to #1	x						

SO208 DR38
Description of Location and Structure: "Zecke", about 12nm NNE of DR37; oval shaped smnt with smooth flanks, dredge along North side

Dredge on bottom	UTC 26/07/10 07:09hrs, lat 09°26,72'N, long 87°04,58'W, depth 3045m
Dredge off bottom	UTC 26/07/10 08:03hrs, lat 09°26,70'N, long 87°04,59'W, depth 3002m
total volume:	1/4 full
Comments:	pillow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR38-1-VC	1. Rock Type: volcaniclastic, slightly altered 2. Size: 32x22x20 3. Shape / Angularity: angular 10. Comment: breccia containing big chunks of glass (fresh)				x		EMP	
SO208 DR38-2	1. Rock Type: pillow fragment, medium - highly altered 2. Size: 22x18x18 3. Shape / Angularity: subangular 4. Color of cut surface: dry: dark grey at rim, yellow/brownish at core 5. Texture / Vesicularity: aphyric with px, vesicles <1% 6. Phenocrysts: plag: altered, <3%; pyx: altered, <1% 7. Matrix: microcrystalline, submm-mm 8. Secondary Minerals: formation of 2nd min. 9. Encrustations: Mn crust 10. Comment: medium altered pillow fragment with glass crust, ca 5mm				x		EMP	

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR38-3	1. Rock Type: pillow fragment 2. Size: 22x15x12 10. Comment: similar to #2	x						
SO208 DR38-4	1. Rock Type:pillow fragment, medium altered 2. Size: 22x19x16 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey, tan 5. Texture / Vesicularity: aphyric with px, vesicles <1% 6. Phenocrysts: plag: altered- fresh, <3% 7. Matrix: microcrystalline, submm-mm 8. Secondary Minerals: 2nd min formation, partly medium altered fsp 9. Encrustations: Mn crust	x	x	x	x			
SO208 DR38-5	1. Rock Type: pillow fragment, slightly altered 2. Size: 26x18x15 3. Shape / Angularity: angular 4. Color of cut surface: dry: light grey, tan 10. Comment: very similar to #4	x	x					
SO208 DR38-6	1. Rock Type: pillow fragment 2. Size: 16x10x9 10. Comment: very similar to #2	x	x	x				
SO208 DR38-7	1. Rock Type: pillow fragment 2. Size: 16x9x9 10. Comment: very similar to #2		x					
SO208 DR38-8-X	1. Rock Type: pillow fragment with chilled margin 2. Size: 12x9x8 10. Comment: similar to #2						archive	

Appendix IIa (Rock Description Leg 1)

SO208 DR39
Description of Location and Structure: "Hook" smnt, small caldera at eastern flank, caldera has open E-flank, track along southern ridge of caldera

Dredge on bottom	UTC 26/07/10 13:15hrs, lat 09°08,28'N, long 86°56,17'W, depth 2330m
Dredge off bottom	UTC 26/07/10 14:35hrs, lat 09°07,87'N, long 86°56,36'W, depth 1917m
total volume:	1/2 full
Comments:	pillows, sheet flow

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR39-1	1. Rock Type: pillow basalt 2. Size: 20x18x7 3. Shape / Angularity: subangular 4. Color of cut surface: light grey 5. Texture / Vesicularity: massive, <1% vesicles 7. Matrix: submm, highly altered Ol (?), fresh pyx, plag 8. Secondary Minerals: altered cc in cracks 9. Encrustations: <1mm Mn	x	x	1-2				
SO208 DR39-2	1. Rock Type: pillow basalt 2. Size: 20x10x10 3. Shape / Angularity: angular 4. Color of cut surface: light grey, red 7. Matrix: similar to # 1 plus oxidized areas are nearly radial altered plag 8. Secondary Minerals: alteration in cracks 9. Encrustations: <1mm Mn 10. Comment: similar to #1	x	x	2				
SO208 DR39-3	1. Rock Type: pillow basalt 2. Size: 21x11x7 7. Matrix: plag + pyx mm to submm, fresh to altered 10. Comment: similar to #1 & #2	x		2-3				
SO208 DR39-4	1. Rock Type: pillow basalt 2. Size: 18x10x7 3. Shape / Angularity: angular 6. Phenocrysts: iddingsite: 2%, fresh, submm, pyx: 1%, fresh, submm; plag: <1%, fresh, submm 7. Matrix: plag + pyx, microcrystalline, fresh 8. Secondary Minerals: cc in vesicles 9. Encrustations: <1mm Mn 10. Comment: similar to #1	x	x	2				
SO208 DR39-5	1. Rock Type: pillow basalt 2. Size: 28x24x17 5. Texture / Vesicularity: massve, vesicles 2% 6. Phenocrysts: pyx: mm, fresh, 1% (red mineral, poss altered pyx?, submm, fresh, <1%) 7. Matrix: microcrystalline, plag, pyx, fresh 8. Secondary Minerals: cc in vesicles and cracks 9. Encrustations: mm glass + Mn 10. Comment: similar to #1	x		3	x			
SO208 DR39-6	1. Rock Type: pillow basalt 2. Size: 12x10x8 3. Shape / Angularity: subangular 4. Color of cut surface: light grey and tan 5. Texture / Vesicularity: massive, 1% vesicles 7. Matrix: altered Ol / iddingsite (?); pyx, plag: mm to submm, fresh 8. Secondary Minerals: alteration in cracks 9. Encrustations: <1mm Mn 10. Comment: similar to #1			3				
SO208 DR39-7	1. Rock Type: pillow basalt 2. Size: 12x10x9 3. Shape / Angularity: subangular 4. Color of cut surface: light grey + tan 6. Phenocrysts: pyx: 1%, submm, fresh 7. Matrix: iddingsite ?, plag, pyx, submm, fresh 8. Secondary Minerals: cc in cracks 9. Encrustations: <9mm Mn 10. Comment: similar to #1	x		3-4				
SO208 DR39-8-VC	1. Rock Type: volcaniclastic 2. Size: 33x27x15 basaltic clasts: glassy, angular to rounded, cm to submm, poorly sorted, no grading but some clasts look as though once a bigger basaltic chunk that was broken, all clasts are rimed by altered cc matrix: ooze and cc 9. Encrustations: cm Mn crust 10. Comment:	x			x		EMP	

Appendix IIa (Rock Description Leg 1)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR39-9-VC	1. Rock Type: volcaniclastic 2. Size: 30x20x16 3. Shape / Angularity: basaltic clasts, glassy, subangular, cm in size, poorly sorted, nearly layers of clasts divided by thick cc, all clasts are rimed by altered cc, cc in vesicles of clasts 9. Encrustations: crust of cm Mn						EMP	

SO208 DR40
Description of Location and Structure: "Hook", smnt 1,8nm NE of DR39 on a small separate hill/cone, NE facing flank

Dredge on bottom	UTC 26/07/10 16:57hrs, lat 09°09,24'N, long 86°55,11'W, depth 2954m
Dredge off bottom	UTC 26/07/10 18:09hrs, lat 09°09,22'N, long 86°55,24'W, depth 2874m
total volume:	very few rocks
Comments:	

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR40-1	1. Rock Type: pillow basalt 2. Size: not determined 3. Shape / Angularity: subangular 4. Color of cut surface: light grey, dark grey 5. Texture / Vesicularity: massive, 1% vesicles 7. Matrix: submm, Ol: fresh, iddingsite: fresh, plag, pyx: fresh 9. Encrustations: <1mm Mn	x	x	1				
SO208 DR40-2	1. Rock Type: pillow basalt 2. Size: 10x6x5 5. Texture / Vesicularity: massive, vesicles 1% 6. Phenocrysts: Ol: mm to submm, fresh to altered 7. Matrix: pyx, plag, altered Ol, submm 10. Comment: simialr to #1	x		1				
SO208 DR40-3	1. Rock Type: pillow basalt 2. Size: 9x6x3 3. Shape / Angularity: subangular 4. Color of cut surface: light grey 5. Texture / Vesicularity: massive, vesicles 1% 6. Phenocrysts: Ol: mm, fresh, 1%; iddingsite: mm, fresh, <1% 7. Matrix: submm, fresh, pyx, plag 8. Secondary Minerals: iddingsite, cc in cracks 9. Encrustations: <1mm Mn 10. Comment: similar to #1	x		1				
SO208 DR40-4-M	1. Rock Type: manganese nodule 2. Size: 11x4x1 3. Shape / Angularity: round 4. Color of cut surface: black 5. Texture / Vesicularity: concentric ovals with undulose texture							
SO208 DR40-5-X	1. Rock Type: pillow basalt 2. Size: not determined 3. Shape / Angularity: subangular 4. Color of cut surface: light grey 5. Texture / Vesicularity: massive, vesicles <1% 6. Phenocrysts: Ol: fresh, submm, 5% 7. Matrix: submm, fresh, plag+pyx 8. Secondary Minerals: cc in cracks 9. Encrustations: <1mm Mn 10. Comment: 5 pieces for archive						archive	no picture

SO208 MUC41
Description of Location and Structure: deep sea plane

Dredge on bottom	UTC 26/07/10 20:44hrs, lat 09°09,65'N, long 86°52,33'W, depth 3118m
Dredge off bottom	UTC 26/07/10 20:45hrs, lat 09°09,65'N, long 86°52,33'W, depth 3113m
total volume:	12 full cores
Comments:	

Appendix IIb (Rock Description Leg 2)

SO208 MUC42 **Description of Location and Structure: ocean floor in small valley/basin, N of western CNS**	
MUC on bottom	UTC 05/08/10 12:22hrs, lat 02°19,81'N, long 91°19,05'W, depth 2418m
MUC off bottom	UTC 05/08/10 12:19hrs, lat 02°19,81'N, long 91°19,05'W, depth 2418m
total volume:	12 of 12
Comments:	stratified sediment

SO208 TVG43 **Description of Location and Structure: West CNS, N of center of ridge**	
TVG on bottom	UTC 05/08/10 21:00hrs, lat 02°06,64'N, long 91°56,65'W, depth 1675m
TVG off bottom	UTC 05/08/10 22:06hrs, lat 02°06,84'N, long 91°56,91'W, depth 1682m
total volume:	empty
Comments:	

SO208 DR44 **Description of Location and Structure: smt on top CNS, NE-facing slope of irregular shaped, ca. 50m high smt**	
Dredge on bottom	UTC 05/08/10 23:45hrs, lat 02°06,64'N, long 91°56,80'W, depth 1681m
Dredge off bottom	UTC 06/08/10 00:15hrs, lat 02°06,53'N, long 91°56,96'W, depth 1597m
total volume:	empty
Comments:	

SO208 DR45 **Description of Location and Structure: smt on top of CNS, 200m E of DR44, prominet spur, facing NE**	
Dredge on bottom	UTC 06/08/10 01:38hrs, lat 02°06,48'N, long 91°56,78'W, depth 1621m
Dredge off bottom	UTC 06/08/10 02:13hrs, lat 02°06,29'N, long 91°56,94'W, depth 1622m
total volume:	few rocks
Comments:	pillow fragments with fresh glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR45-1	1. Rock Type: pillow fragment, fresh 2. Size: 26x17x13 3. Shape / Angularity: subangular 4. Color of cut surface: wet: dark grey 5. Texture / Vesicularity: massive, dense, vesicles 5% 6. Phenocrysts: fsp: <1%, mm-submm 7. Matrix: aphyric 8. Secondary Minerals: 9. Encrustations: glass crust <5mm 10. Comment: representative sample for this dredge, very fresh basalt with fresh glass crust, minor signs of alteration, vesicles are elongated and parallel to pillow top, seEMA to be same material in this dredge	x	x		x		EMP	
SO208 DR45-2	1. Rock Type: pillow fragment, fresh-slightly altered 2. Size: 18x14x12 3. Shape / Angularity: subangular 10. Comment: very similar to #1				x		EMP	
SO208 DR45-3	1. Rock Type: pillow fragment 2. Size: 17x15x8 10. Comment: sample was not cut, seEMA to be same material as #1, glass chips were sampled				x		EMP	
SO208 DR45-4	1. Rock Type: pillow fragment 2. Size: 20x12x6 10. Comment: sample was not cut, seEMA to be same material as #1, glass chips were sampled				x		EMP	
SO208 DR45-5	1. Rock Type: pillow fragment 2. Size: 14x10x8 10. Comment: sample was not cut, seEMA to be same material as #1, glass chips were sampled				x		EMP	

Appendix IIb (Rock Description Leg 2)

SO208 DR46
Description of Location and Structure: ridge NE of DR45, 1.5nm away, NE facing slope

Dredge on bottom	UTC 06/08/10 04:09hrs, lat 02°07,35'N, long 91°55,99'W, depth 1844m
Dredge off bottom	UTC 06/08/10 04:48hrs, lat 02°07,04'N, long 91°56,10'W, depth 1785m
total volume:	1 rock
Comments:	pillow fragment

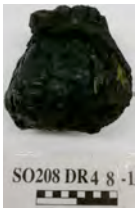
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR46-1	1. Rock Type: pillow fragment, fresh 2. Size: 12x12x7 3. Shape / Angularity: subangular 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, 5% vesicles 6. Phenocrysts: fsp: submm, <1%, fresh 7. Matrix: microcrystalline 9. Encrustations: glass crust 10. Comment: very fresh pillow fragment with glassy crust, vesicles are unfilled	x			x		EMP	

SO208 DR47
Description of Location and Structure: 1.5nm NW of DR46, N facing slope of E-W striking ridge

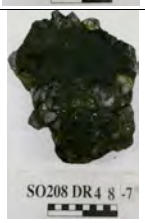
Dredge on bottom	UTC 06/08/10 06:41hrs, lat 02°07,69'N, long 91°57,12'W, depth 1848m
Dredge off bottom	UTC 06/08/10 07:15hrs, lat 02°07,48'N, long 91°57,16'W, depth 1810m
total volume:	empty
Comments:	

SO208 DR48
Description of Location and Structure: 2nd ridge N of CNS, N-facing slope

Dredge on bottom	UTC 06/08/10 09:08hrs, lat 02°08,68'N, long 91°56,91'W, depth 2099m
Dredge off bottom	UTC 06/08/10 10:27hrs, lat 02°08,22'N, long 91°57,06'W, depth 1869m
total volume:	few rocks
Comments:	pillow fragments with fresh rind, sometimes altered to reddish brown palagonite

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR48-1	1. Rock Type: pillow fragment, fairly fresh 2. Size: 15x13x10 3. Shape / Angularity: subangular to angular 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: massive, cryptocrystalline - glassy, vesicles 3% 10. Comment: representative glass sample for this dredge, to little basalt for GC, seEMA to be fresh with little signs of alteration				x		EMP	
SO208 DR48-2	1. Rock Type: pillow fragment, fairly fresh 2. Size: 20x18x17,5 3. Shape / Angularity: subangular - angular 4. Color of cut surface: dark grey 5. Texture / Vesicularity: aphyric, massive, <3% vesicles 6. Phenocrysts: fsp: fresh, submm, 1% 7. Matrix: microcrystalline, submm, fsp 8. Secondary Minerals: signs of alteration along cracks 9. Encrustations: thin Mn coating 10. Comment: representative sample for GC, vesicles in bonds parallel to the top of the pillow	x	x		x		EMP	
SO208 DR48-3	1. Rock Type: pillow fragment, fairly fresh 2. Size: 17x15x14 10. Comment: sample was not cut, bulk semms to be same material as #1, only glass was sampled				x		EMP	
SO208 DR48-4	1. Rock Type: pillow fragment 2. Size: 18x10x8 10. Comment: similar to #1,#3, sample was not cut, only glass was sampled				x		EMP	
SO208 DR48-5	1. Rock Type: pillow fragment 2. Size: 23x17x14 3. Shape / Angularity: subangular - rounded 4. Color of cut surface: dark grey 10. Comment: similar to #2	x	x					

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR48-6	1. Rock Type: pillow fragment, fairly fresh 2. Size: 20x17x14 10. Comment: similar to sample #1, sample was not cut, only glass was sampled				x		EMP	
SO208 DR48-7	1. Rock Type: pillow fragment, fairly fresh 2. Size: 16x14x9 10. Comment: similar to sample #2	x	x		x		EMP	
SO208 DR48-8	1. Rock Type: pillow fragment 2. Size: 21x15x14 10. Comment: similar to sample #2	x	x					

SO208 DR49
Description of Location and Structure: 3nm W of DR48, 2nd location at ridge 2 N of CNS, N-facing slope

Dredge on bottom	UTC 06/08/10 13:08hrs, lat 02°08,07'N, long 91°53,72'W, depth 1978m
Dredge off bottom	UTC 06/08/10 14:18hrs, lat 02°07,65'N, long 91°53,82'W, depth 1835m
total volume:	few rocks
Comments:	pillow fragments, prob all same lithology

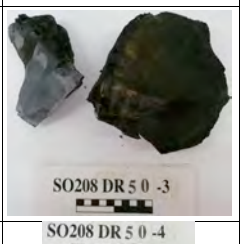
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR49-1	1. Rock Type: pillow fragment, fresh 2. Size: 20x17x13 3. Shape / Angularity: roundish surface, angular chunk 4. Color of cut surface: grey with black glassy rim 5. Texture / Vesicularity: massive, vesicles 3-5%, vesicles empty, 2 generations 6. Phenocrysts: fsp: submm-mm, 25%, appear fresh 7. Matrix: cryptocrystalline 8. Secondary Minerals: along glass a litte reddish alteration to palagonite 10. Comment:	x	x		x		EMP	
SO208 DR49-2	1. Rock Type: pillow fragment 2. Size: 21x19x15 10. Comment: very similar to #1	x	x		x		EMP	
SO208 DR49-3	1. Rock Type: pillow fragment 2. Size: 15x14x11 10. Comment: very similar to #1	x			x		EMP	
SO208 DR49-4	1. Rock Type: pillow fragment 2. Size: 20x15x9 10. Comment: very similar to #1				x		EMP	

Appendix IIb (Rock Description Leg 2)

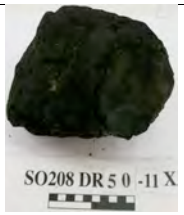
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR49-5	1. Rock Type: pillow fragment 2. Size: 12x12x9 10. Comment: very similar to #1						EMP	
SO208 DR49-6	1. Rock Type: pillow fragment without glassy crust 2. Size: 10x10x8 10. Comment: very similar to #1						EMP	

SO208 DR50
Description of Location and Structure: 2nm NE of DR49, ridge further north of CNS (ca. 7nm)

Dredge on bottom	UTC 06/08/10 16:18hrs, lat 02°09,51'N, long 91°54,16'W, depth 2125m
Dredge off bottom	UTC 06/08/10 16:56hrs, lat 02°09,12'N, long 91°54,18'W, depth 2113m
total volume:	1/2 full
Comments:	pillow fragments, all the same lithology, alteration is now slightly increasing, further away from the spreading center

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR50-1	1. Rock Type: pillow fragment with glassy crust 2. Size: 22x20x15 3. Shape / Angularity: roundish surface, angular broken edges 4. Color of cut surface: grey 5. Texture / Vesicularity: massive, vesicles 3-5%, few areas with a generation of large vesicle tubes, vesicles empty 6. Phenocrysts: fsp: appears fresh, submm, 20-25% 7. Matrix: cryptocrystalline, dense 8. Secondary Minerals: along cracks, very faint alteration halos of lighter grey material 9. Encrustations: glass crust ca 5mm 10. Comment: fresh material for further analysis, however glass very brittle and with palagonite, spalling off easily	x	x		x		EMP	
SO208 DR50-2	1. Rock Type: pillow fragment 2. Size: 21x18x16 10. Comment: similar to #1 but glass more altered, up to 1cm thick	x			x		EMP	
SO208 DR50-3	1. Rock Type: pillow fragment 2. Size: 28x21x19 9. Encrustations: thin Mn crust along base of pillow fragment, 10. Comment:similar to #1, double pillow	x	x		x		EMP	
SO208 DR50-4	1. Rock Type: pillow fragment 2. Size: 25x22x20 9. Encrustations: glass crust <5mm, highly altered 10. Comment: similar to #1	x			x			
SO208 DR50-5	1. Rock Type: pillow fragment 2. Size: 16x13x9 10. Comment: similar to #1, glassy <5mm							

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR50-6	1. Rock Type: pillow fragment 2. Size: 15x13x10 10. Comment: similar to #1 but glass <5mm							
SO208 DR50-7	1. Rock Type: pillow fragment 2. Size: 14x11x7 10. Comment: similar to #1							
SO208 DR50-8	1. Rock Type: pillow fragment 2. Size: 10x10x6 10. Comment: similar to #1							
SO208 DR50-9	1. Rock Type: pillow fragment 2. Size: 14x8x7 10. Comment: similar to #1							
SO208 DR50-10	10. Comment: glass crusts assembled from blue boxes							
SO208 DR50-11-X	2. Size: 19x13x11 10. Comment: small beautiful pillow with minor glass crust							

SO208 DR51 **Description of Location and Structure: N of CNS, 1nm E of DR50 along the same "ridge"**	
Dredge on bottom	UTC 06/08/10 18:41hrs, lat 02°09,83'N, long 91°54,81'W, depth 2123m
Dredge off bottom	UTC 06/08/10 19:28hrs, lat 02°09,42'N, long 91°54,71'W, depth 2099m
total volume:	several rocks
Comments:	pillow and sheet flow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR51-1	1. Rock Type: sheet lava, glassy 2. Size: 25x15x10 3. Shape / Angularity: irregular piece with striated surface and very irregular, convoluted base 4. Color of cut surface: black and grey in central part 5. Texture / Vesicularity: vesicles 1-2%, vesicles empty 6. Phenocrysts: fsp: microphenocrysts, <<1mm, 10%, appear fresh 7. Matrix: glassy to cryptocrystalline 8. Secondary Minerals: 9. Encrustations: <1mm Mn crust on striated surface 10. Comment: very fresh pristine glass and groundmass, rock to friable/brittle for GC, basal part: pockets of enclosed sediment, thin shards of glass surrounding sediment, taken as extra sample	x			x			

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR51-2	1. Rock Type: sheet lava 2. Size: 23x18x3 3. Shape / Angularity: slab 4. Color of cut surface: black 5. Texture / Vesicularity: glass, almost no crystalline interior 6. Phenocrysts: almost no fsp crystal recognized, tiny <5% 7. Matrix: 8. Secondary Minerals: 9. Encrustations: 10. Comment: similar to #1, sample almost pure glass	x			x			
SO208 DR51-3	1. Rock Type: sheet lava 2. Size: 18x16x4 10. Comment: similar to #2				x			
SO208 DR51-4	1. Rock Type: pillow fragment 2. Size: 27x21x16 3. Shape / Angularity: smooth roundish surfaces and angular broken sides 4. Color of cut surface: dark grey 5. Texture / Vesicularity: massive, vesicles 5%, vesicles empty 6. Phenocrysts: fsp: submm, 15-20%, appear fresh 7. Matrix: cryptocrystalline 8. Secondary Minerals: 9. Encrustations: <1mm Mn 10. Comment: nice fresh material, but breaks along cooling cracks	x	x		x		EMP	
SO208 DR51-5	1. Rock Type: pillow fragment 2. Size: 23x19x18 10. Comment: similar to #4	x	x		x		EMP	
SO208 DR51-6	1. Rock Type: pillow fragment 2. Size: 19x18x11 9. Encrustations: minor alteration halos along cracks 10. Comment: very little fresh glass, similar to #4	x	x		(x)			
SO208 DR51-7	1. Rock Type: pillow fragment 2. Size: 18x14x12 10. Comment: single pillow-half, 180mm in diameter, no glass	x						
SO208 DR51-8	1. Rock Type: pillow fragment 2. Size: 22x11x8 5. Texture / Vesicularity: vesicles partly filled 6. Phenocrysts: fsp: <1mm, 25-30% 10. Comment: large "tooth" shaped fragment of a large pillow, slightly coarser crystallized than previous samples, similar to #4	x						
SO208 DR51-9-X	1. Rock Type: sheet lava 2. Size: 5x5 10. Comment: 8 pieces of sheet lava, very similar to #1 and #2							

SO208 DR52 **Description of Location and Structure: N of CNS, 3nm N of DR51, steep slope**	
Dredge on bottom	UTC 06/08/10 21:35hrs, lat 02°12,23'N, long 91°53,96'W, depth 2281m
Dredge off bottom	UTC 06/08/10 22:22hrs, lat 02°11,87'N, long 91°54,11'W, depth 2150m
total volume:	empty
Comments:	

Appendix IIb (Rock Description Leg 2)

SO208 DR53
Description of Location and Structure: N of CNS, 1.5nm E of DR52, along same scarp

Dredge on bottom	UTC 07/08/10 00:23hrs, lat 02°12,55'N, long 91°53,55'W, depth 2442m
Dredge off bottom	UTC 07/08/10 01:27hrs, lat 02°12,18'N, long 91°53,70'W, depth 2266m
total volume:	few rocks
Comments:	pillow and pillow fragments, thin Mn encrustations, fresh glass questionable

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR53-1	1. Rock Type: pillow fragment, medium altered 2. Size: 18x18x17 3. Shape / Angularity: angular 4. Color of cut surface: dry: light grey 5. Texture / Vesicularity: apyhric, 7% vesicles 6. Phenocrysts: fsp: microphenocrysts, <1%, fresh ? 7. Matrix: microscrystalline, submm, fsp 8. Secondary Minerals: FeOH in vesicles along cracks, palagonite along margin -> no fresh glass 9. Encrustations: Mn crust 1mm 10. Comment: representative sample with glass altered to palagonite, alteration halo along cracks, material very vesicular	x	x					
SO208 DR53-2	1. Rock Type: pillow fragment, medium altered 2. Size: 23x21x20 3. Shape / Angularity: angular 10. Comment: similar to #1	x	x					
SO208 DR53-3	1. Rock Type: pillow fragment 2. Size: 24x19x13 10. Comment: similar to #1	x	x					
SO208 DR53-4	1. Rock Type: pillow fragment 2. Size: 20x15x12 10. Comment: similar to #1		x					
SO208 DR53-5	1. Rock Type: pillow fragment 2. Size: 15x13x10 10. Comment: similar to #1	x	x					

SO208 DR54
Description of Location and Structure: N of CNS, 1nm S of DR53, quite flat

Dredge on bottom	UTC 07/08/10 03:20hrs, lat 02°11,29'N, long 91°53,75'W, depth 2196m
Dredge off bottom	UTC 07/08/10 04.07hrs, lat 02°10,91'N, long 91°53,92'W, depth 2179m
total volume:	empty
Comments:	

SO208 DR55
Description of Location and Structure: 2nm SE of DR54, N of CNS, parallel to CNS striking ridge, N-facing slope

Dredge on bottom	UTC 07/08/10 06:17hrs, lat 02°10,77'N, long 91°53,07'W, depth 2254m
Dredge off bottom	UTC 07/08/10 07:31hrs, lat 02°10,30'N, long 91°53,12'W, depth 2101m
total volume:	very few rocks
Comments:	pillow fragments with forams

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR55-1	1. Rock Type: pillow fragment, slightly altered 2. Size: 17x14x12 3. Shape / Angularity: subangular 4. Color of cut surface: light grey 5. Texture / Vesicularity: aphyric, vesicles <5% 6. Phenocrysts: fsp: microphenocrystalls, fresh 7. Matrix: microcrystalline, submm, fsp 8. Secondary Minerals: 2nd min. formation, vesicles partly filled with 2nd min, FeOH in vesicles 9. Encrustations: <1mm Mn+glass 10. Comment: representative sample for this dredge, glass crust, elongated vesicles perpendicular to pillow top	x	x		x			

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR55-2	1. Rock Type: pillow fragment, altered 2. Size: 12x11x7 3. Shape / Angularity: angular 4. Color of cut surface: wet: dark grey, grey, tan 5. Texture / Vesicularity: aphyric, <1% vesicles 6. Phenocrysts: fsp: submm-mm, fresh, platty 7. Matrix: microcrystalline, submm 8. Secondary Minerals: FeOH along cracks and margin 9. Encrustations: thin Mn-coating 10. Comment:	x	x					
SO208 DR55-3	1. Rock Type: pillow fragment, altered 2. Size: 12x9x7 10. Comment: similar to #2	x	x					

SO208 DR56
Description of Location and Structure: 1.5nm WSW of DR55, N of DR51, along N-facing slope of small smt

Dredge on bottom	UTC 07/08/10 09:25hrs, lat 02°10,01'N, long 91°54,47'W, depth 2322m
Dredge off bottom	UTC 07/08/10 10:26hrs, lat 02°09,67'N, long 91°54,64'W, depth 2171m
total volume:	few rocks
Comments:	fsp-rich pillow, Mn crust and glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR56-1	1. Rock Type: pillow, medium altered 2. Size: 26x16x13 3. Shape / Angularity: rounded 4. Color of cut surface: dry: light grey 5. Texture / Vesicularity: aphyric, 1% vesicles 6. Phenocrysts: Fsp: 30%, fresh - slightly altered, submm-mm; Ol: 5%, fresh-slightly altered, submm-mm 7. Matrix: microcrystalline, Ol, Fsp 8. Secondary Minerals: signs of alteration 9. Encrustations: cm thick of Mn and glass 10. Comment: Fsp and Ol rich pillow basalt with thick glass crust, even in glass are fsp-crystalls	x	x		x		EMP	
SO208 DR56-2	1. Rock Type: pillow fragment 2. Size: 15x13x12 10. Comment: similar to #1	x	x					

SO208 DR57
Description of Location and Structure: N of CNS, N-facing slope of E-W striking ridge

Dredge on bottom	UTC 07/08/10 12:46hrs, lat 02°12,02'N, long 91°50,49'W, depth 2433m
Dredge off bottom	UTC 07/08/10 14:13hrs, lat 02°11,54'N, long 91°50,68'W, depth 2144m
total volume:	several rocks
Comments:	pillows, prob all same lithology, little fresh glass, slight variations in fsp-phenos according to size and amount within all 5 samples

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR57-1	1. Rock Type: pillow, basaltic with altered glass rim 2. Size: 23x17x15 3. Shape / Angularity: smooth roundish outer surface 4. Color of cut surface: dark grey, glass: black 5. Texture / Vesicularity: massive, dense, vesicles 7%, vesicles empty 6. Phenocrysts: fsp: tabular to blocky, needle-like, 3%, <1mm, appear fresh 7. Matrix: cryptocrystalline with phenos 8. Secondary Minerals: 9. Encrustations: 1mm Mn crust and Fe-OH skinning along cracks 10. Comment: appears to be good, fresh rock, except palagonitic alteration and hydration of glassy rim	x	x		x		EMP	
SO208 DR57-2	1. Rock Type: pillow 2. Size: 40x28x22 10. Comment: similar to #1 but variations in fsp-phenos (size and amount)	x	x		x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR57-3	1. Rock Type: pillow 2. Size: 28x20x17 10. Comment: similar to #1	x			x		EMP	
SO208 DR57-4	1. Rock Type: pillow 2. Size: 24x23x22 10. Comment: similar to #1				x		EMP	
SO208 DR57-5	1. Rock Type: pillow 2. Size: 16x15x10 10. Comment: similar to #1				x		EMP	

SO208 DR58
Description of Location and Structure: N of CNS, E-W striking ridge, N-facing slope

Dredge on bottom	UTC 07/08/10 17:23hrs, lat 02°10,53'N, long 91°56,59'W, depth 2185m
Dredge off bottom	UTC 07/08/10 16:36hrs, lat 02°11,03'N, long 91°56,74'W, depth 2170m
total volume:	1/4 full
Comments:	pillow and sheet lava fragments, sediments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR58-1	1. Rock Type: pillow, basaltic with glassy rim 2. Size: 33x27x26 3. Shape / Angularity: smooth roundish surface, angular edges of interior parts 4. Color of cut surface: dark grey 5. Texture / Vesicularity: dense, vesicles 2-7%, varying over different areas of pillow, mostly empty, only along cracks filled with rusty-brown clayey substance 6. Phenocrysts: fsp: needles in radial aggregates, mostly fresh, 3%, <1mm 7. Matrix: cryptocrystalline 8. Secondary Minerals: along cracks 5-10mm alteration halos (filled vesicles) 9. Encrustations: Mn crust <2mm, brittle 10. Comment:	x	x		x		EMP	no picture
SO208 DR58-2	1. Rock Type: pillow 2. Size: 30x19x19 10. Comment: similar to #1, small glass sample	x	x		x		EMP	no picture
SO208 DR58-3	1. Rock Type: pillow fragment 2. Size: 17x12x10 5. Texture / Vesicularity: vesicles <2% 6. Phenocrysts: fsp: 2% 10. Comment: similar to #1 but without glassy crust	x						
SO208 DR58-4	1. Rock Type: thin sheet lava 2. Size: 24x17x10 3. Shape / Angularity: irregular shaped 4. Color of cut surface: dark grey to black, mostly 5. Texture / Vesicularity: flow banding, vesicles <1% 7. Matrix: cryptocrystalline to glassy 9. Encrustations: 1-2mm Mn crust 10. Comment: very brittle				x		EMP	
SO208 DR58-5	1. Rock Type: sheet lava 2. Size: 14x10x10 10. Comment: similar to #4				x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR58-6	1. Rock Type: sheet lava 2. Size: 10x9x8 10. Comment: similar to #4, no glass was collected due to small sample size, but it should be possible	x						
SO208 DR58-7	1. Rock Type: basaltic lava with brecciated top 2. Size: 12x10x10 3. Shape / Angularity: angular 4. Color of cut surface: medium grey 5. Texture / Vesicularity: massive, dense, vesicles 1-2% 6. Phenocrysts: fsp: submm, 30%, appear fresh 7. Matrix: cryptocrystalline 8. Secondary Minerals: 9. Encrustations: Mn crust of <1mm 10. Comment:	x	x					
SO208 DR58-8	1. Rock Type: basaltic lava 2. Size: 14x12x10 10. Comment: similar to #7							
SO208 DR58-9-S	1. Rock Type: soft pelagic calcareous sediment with hyaloclastic shards 2. Size: 13x8x6 3. Shape / Angularity: slab 4. Color of cut surface: light dream / beige 5. Texture / Vesicularity: faintly bedded 7. Matrix: calc. ooze 9. Encrustations: Mn crust of 2mm 10. Comment: friable, soft, hyalo shards up to 4mm, often platy or elongated, splinters					x		
SO208 DR58-10-X	10. Comment: 2 pieces similar to #3						archive	
SO208 DR58-11-X	10. Comment: 6 peices similar to #4 - #6						archive	

SO208 DR59 **Description of Location and Structure: N of CNS, little "hole"-like structure, NE of DR58**	
Dredge on bottom	UTC 07/08/10 19:28hrs, lat 02°11,83'N, long 91°56,41'W, depth 2234m
Dredge off bottom	UTC 07/08/10 20:02hrs, lat 02°11,53'N, long 91°56,40'W, depth 2141m
total volume:	empty
Comments:	

Appendix IIb (Rock Description Leg 2)

SO208 DR60
Description of Location and Structure: N of CNS, 1.5nm NNE of DR59

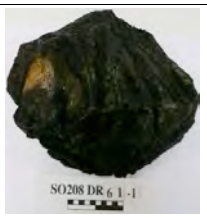
Dredge on bottom	UTC 07/08/10 22:01hrs, lat 02°12,84'N, long 91°56,36'W, depth 2263m
Dredge off bottom	UTC 07/08/10 23:37hrs, lat 02°12,09'N, long 91°56,39'W, depth 2155m
total volume:	several rocks
Comments:	pillows, prob all same lithology

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR60-1	1. Rock Type: pillow, basaltic with glassy crust 2. Size: 21x19x14 3. Shape / Angularity: smooth roundish surface, angular broken edges 4. Color of cut surface: grey and brownish-grey 5. Texture / Vesicularity: massive, dense, vesicles 5% (generally unfilled) 6. Phenocrysts: fsp: needles, submm, appear fresh. 25-30% 7. Matrix: cryptocrystalline 8. Secondary Minerals: palagonitisation and halos along cracks and near surface, 5-10mm 9. Encrustations: Mn crust 2mm 10. Comment: mostly good rock except along alteration halos, glass appears hydrated, very friable	x	x		x		EMP	
SO208 DR60-2	1. Rock Type: pillow 2. Size: 40x30x29 10. Comment: similar to #1	x	x		x		EMP	
SO208 DR60-3	1. Rock Type: pillow 2. Size: 32x30x17 10. Comment: similar to #1				x		EMP	
SO208 DR60-4	1. Rock Type: pillow fragment 2. Size: 16x14x10 10. Comment: similar to #1				x		EMP	
SO208 DR60-5	1. Rock Type: pillow fragment 2. Size: 12x10x6 10. Comment: similar to #4 but no glass was sampled							
SO208 DR60-6	1. Rock Type: pillow fragment 2. Size: 11x8x6 10. Comment: similar to #4 but no glass was sampled							
SO208 DR60-7-X	1. Rock Type: pillow fragments 10. Comment: several pieces similar to #1 - #6							

Appendix IIb (Rock Description Leg 2)

SO208 DR61
Description of Location and Structure: N of CNS, N-facing slope from basin to top of ridge

Dredge on bottom	UTC 08/08/10 07:07hrs, lat 02°16,29'N, long 91°56,08'W, depth 2456m
Dredge off bottom	UTC 08/08/10 08:28hrs, lat 02°15,80'N, long 91°56,28'W, depth 2273m
total volume:	1/5 full
Comments:	pillow and pillow fragments, some with glass rind

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR61-1	1. Rock Type: pillow, fairly fresh, glass 2. Size: 29x20x20 3. Shape / Angularity: subangular - rounded 4. Color of cut surface: dry: light grey / tan 5. Texture / Vesicularity: massive, aphyric, vesicles <1% 6. Phenocrysts: fsp: <3%, fresh, submm 7. Matrix: microcrystalline, fsp, submm 8. Secondary Minerals: 2nd min. FeOH 9. Encrustations: Mn crust <5mm 10. Comment:	x	x		x		EMP	
SO208 DR61-2	1. Rock Type: pillow fragment 2. Size: 27x20x19 6. Phenocrysts: fsp: <3%, fresh, submm; pyx: <1%, fresh, submm 10. Comment: similar to #1	x	x		x		EMP	
SO208 DR61-3	1. Rock Type: pillow 2. Size: 23x18x12 10. Comment: similar to #1	x	x		x		EMP	
SO208 DR61-4	1. Rock Type: pillow 2. Size: 26x16x14 10. Comment: similar to #1	x	x		x		EMP	
SO208 DR61-5	1. Rock Type: pillow fragment 2. Size: 19x18x12 10. Comment: similar to #1, rock was not cut, only glass was sampled				x		EMP	
SO208 DR61-6	1. Rock Type: pillow fragment 2. Size: 22x17x14 10. Comment: similar to #1, rock was not cut, only glass was sampled				x		EMP	
SO208 DR61-7	1. Rock Type: pillow fragment 2. Size: 21x15x10 10. Comment: similar to #1, rock was not cut, only glass was sampled				x		EMP	
SO208 DR61-8	1. Rock Type: pillow fragment 2. Size: 13x12x8 10. Comment: similar to #1, rock was not cut, only glass was sampled				x		EMP	

Appendix IIb (Rock Description Leg 2)

SO208 DR62
Description of Location and Structure: N of CNS, 1nm SE of DR61, NE slope of small, irregular shaped cone

Dredge on bottom	UTC 08/08/10 10:24hrs, lat 02°15,17'N, long 91°55,46'W, depth 2316m
Dredge off bottom	UTC 08/08/10 11:14hrs, lat 02°14,87'N, long 91°55,60'W, depth 2219m
total volume:	few rocks
Comments:	pillow fragments with altered glass crust

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR62-1	1. Rock Type: pillow fragment 2. Size: 19x17x11 3. Shape / Angularity: subangular - rounded 4. Color of cut surface: light grey 5. Texture / Vesicularity: aphyric, vesicles <1% 6. Phenocrysts: fsp: fresh, <3%, submm; pyx: fresh, <1%, submm-mm 7. Matrix: microcrystalline 8. Secondary Minerals: 2nd min due to alteration, FeOH in vesicles 9. Encrustations: Mn crust 10. Comment: big pyx-crystalls	x	x		x			
SO208 DR62-2	1. Rock Type: pillow fragment, medium altered 2. Size: 20x18x13 3. Shape / Angularity: subangular - rounded 4. Color of cut surface: dry: light grey, tan 5. Texture / Vesicularity: aphyric, vesicles <1% 6. Phenocrysts: fsp: 1%, fresh, submm 7. Matrix: microcrystalline, submm 8. Secondary Minerals: 2n min formation, FeOH 9. Encrustations: Mn crust 2mm 10. Comment: similar to #1	x	x		x			

SO208 DR63
Description of Location and Structure: "Heiko" smt, N of CNS, small smt at SW flank, westernmost of three E-W aligned off axis (?) smts

Dredge on bottom	UTC 08/08/10 13:??hrs, lat 02°18,20'N, long 91°51,92'W, depth 2357m
Dredge off bottom	UTC 08/08/10 14:28hrs, lat 02°18,53'N, long 91°51,52'W, depth 2159m
total volume:	few rocks
Comments:	basaltic, vesicular rocks

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR63-1	1. Rock Type: basaltic, altered rim (the 1st cm) 2. Size: 11x9x7 3. Shape / Angularity: angular 4. Color of cut surface: wet: dark grey 5. Texture / Vesicularity: dense, vesicularity 45%, 5-7% filled with brownish clay 6. Phenocrysts: Ol: 1-2%, fresh, <1mm 7. Matrix: 8. Secondary Minerals: 9. Encrustations: Mn crust <2mm 10. Comment:	x	x					
SO208 DR63-2	1. Rock Type: basaltic 2. Size: 14x10x7 5. Texture / Vesicularity: vesicles 40%, 10-15% filled with brownish clay 10. Comment: similar to #1	x						
SO208 DR63-3	1. Rock Type: basaltic 2. Size: 14x8x7 10. Comment: similar to #1							
SO208 DR63-4	1. Rock Type: basaltic 2. Size: 13x10x5 10. Comment: similar to #1 but vesicles are smaller	x						
SO208 DR63-5	1. Rock Type: basaltic 2. Size: 10x9x5 10. Comment: similar to #1	x						

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR63-6	1. Rock Type: basaltic 2. Size: 14x9x7 10. Comment: similar to #1 but no Ol							
SO208 DR63-7-X	1. Rock Type: basaltic 2. Size: 5x5x5 10. Comment: four pieces							

SO208 DR64 **Description of Location and Structure: "Heike", N of CNS, 1nm E of smt "Heiko"**	
Dredge on bottom	UTC 08/08/10 16:28hrs, lat 02°18,24'N, long 91°50,72'W, depth 2349m
Dredge off bottom	UTC 08/08/10 17:07hrs, lat 02°18,53'N, long 91°50,42'W, depth 2177m
total volume:	empty
Comments:	

SO208 DR65 **Description of Location and Structure: N of CNS, small E-W striking ridge, 1nm N of DR64, S-facing flank**	
Dredge on bottom	UTC 08/08/10 18:55hrs, lat 02°19,69'N, long 91°50,66'W, depth 2408m
Dredge off bottom	UTC 08/08/10 19:23hrs, lat 02°19,91'N, long 91°50,52'W, depth 2347m
total volume:	empty
Comments:	

SO208 DR66 **Description of Location and Structure: N of CNS, E-W striking ridge, with cone-like elevation on top of ridge, S-facing flank, location ca. 55nm of DR65**	
Dredge on bottom	UTC 08/08/10 21:44hrs, lat 02°19,13'N, long 91°55,87'W, depth 2448m
Dredge off bottom	UTC 08/08/10 22:27hrs, lat 02°19,49'N, long 91°55,75'W, depth 2342m
total volume:	several rocks
Comments:	pillow basalts of prob 2 different lithologies and one 7cm thick pure glassy rock (#7), fresh glass crusts on pillows

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR66-1	1. Rock Type: basaltic, pillow fragment 2. Size: 32x28x24 3. Shape / Angularity: smooth roundish surface, angular, fresh broken edges 4. Color of cut surface: grey, towards rim darker, glass: black 5. Texture / Vesicularity: massive, dense, vesicles 2%, mostly empty, fillings of clayey substance along cracks 6. Phenocrysts: fsp: submm, 25-30%, appear fresh 7. Matrix: glassy-cryptocrystalline 8. Secondary Minerals: alteration halo along cracks of 5-10mm width 9. Encrustations: Mn crust 1-2mm 10. Comment: glass appears pristine	x	x		x		EMP	
SO208 DR66-2	1. Rock Type: pillow fragment 2. Size: 34x26x17 5. Texture / Vesicularity: vesicularity 2-3% 6. Phenocrysts: fsp: <1mm 10. Comment: similar to #1	x			x		EMP	
SO208 DR66-3	1. Rock Type: pillow fragment 2. Size: 25x22x13 10. Comment: similar to #1 but small amount of glass	x	x					
SO208 DR66-4	1. Rock Type: pillow fragment 2. Size: 16x9x8 10. Comment: similar to #1 but only a small piece without glassy crust	x						

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR66-5	1. Rock Type: Ol-phyric basaltic pillow fragment 2. Size: 13x10x10 3. Shape / Angularity: smooth glassy, roundish surface 4. Color of cut surface: dark grey to black 5. Texture / Vesicularity: massive, dense, vesicles 2%, empty 6. Phenocrysts: Ol: 1-2%, <2mm, appear fresh; fsp: submm, 20% 7. Matrix: glassy to cryptocrystalline 9. Encrustations: <1mm Mn crust 10. Comment: seEMA to be same material as #1 but differs in Ol amount and thickness of chilled margin, glass crust to thin to sample	x						
SO208 DR66-6	1. Rock Type: Ol-phyric pillow fragment 2. Size: 10x9x9 10. Comment: similar to #5							
SO208 DR66-7	1. Rock Type: sperolitic glassy rock 2. Size: 12x11x8 3. Shape / Angularity: subangular 4. Color of cut surface: almost black 5. Texture / Vesicularity: massive with up to 10mm spherolitic fibrous aggregates, non vesicular 10. Comment: looks like a snowflake-obsidian, for a basaltic rock the glassy thickness of 70mm in surprising, very brittle				x			
SO208 DR66-8	1. Rock Type: glass 2. Size: 7x8 10. Comment: several pieces of glass crust collected in the blue boxes							
SO208 DR66-9-X	1. Rock Type: pillow fragments 10. Comment: 3 pieces similar to #1-#4						archive	

SO208 DR67 **Description of Location and Structure: N of CNS, E-W striking fault scarp, S-facing slope**	
Dredge on bottom	UTC 09/08/10 03:27hrs, lat 02°24,84'N, long 91°49,85'W, depth 2571m
Dredge off bottom	UTC 09/08/10 04:19hrs, lat 02°25,18'N, long 91°49,82'W, depth 2370m
total volume:	1/3 full
Comments:	pillow and pillow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR67-1	1. Rock Type: pillow fragment, medium altered 2. Size: 19x17x14 3. Shape / Angularity: subangular 4. Color of cut surface: dry: light grey, tan 5. Texture / Vesicularity: aphyric, vesicles 10%, partly filled 7. Matrix: microcrystalline, submm 8. Secondary Minerals: FeOH in vesicles along margin 9. Encrustations: Mn-coating 10. Comment: "fresh" glass was found, high vesicularity, vesicles partly filled, especially vesicles along rims filled with FeOH	x	x		x		EMP	
SO208 DR67-2	1. Rock Type: pillow fragment, medium altered 2. Size: 30x18x16 3. Shape / Angularity: subangular - angular 4. Color of cut surface: dry: light grey, dark grey, tan 5. Texture / Vesicularity: aphyric, vesicles 3%, partly filled 6. Phenocrysts: fsp: mm, <1%; prob pyx: mm, <1mm 7. Matrix: microcrystalline, submm 8. Secondary Minerals: 2nd min. in vesicles, prob. FeOH 9. Encrustations: Mn crust 10. Comment: similar to #1 but less vesicles, alteration halo along margin	x	x		x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR67-3	1. Rock Type: pillow fragment 2. Size: 20x19x12 3. Shape / Angularity: subangular to angular 4. Color of cut surface: light grey, dark grey, tan 5. Texture / Vesicularity: aphyric, <3% vesilces, filled along margin 6. Phenocrysts: pyx: <1%, submm, needle-like 7. Matrix: microcrystalline 8. Secondary Minerals: FeOH 9. Encrustations: Mn coating 10. Comment: similar to #2, contains glass	x	x		x		EMP	
SO208 DR67-4	1. Rock Type: pillow fragment 2. Size: 15x14x10 10. Comment: similar to #2	x	x		x		EMP	
SO208 DR67-5	1. Rock Type: pillow fragment 2. Size: 19x14x12 10. Comment: similar to #2				x		EMP	
SO208 DR67-6	1. Rock Type: pillow fragment 2. Size: 22x21x20 3. Shape / Angularity: angular 4. Color of cut surface: light grey, tan 5. Texture / Vesicularity: massive, dense, aphyric 6. Phenocrysts: fsp: <1%, mm-submm; pyx: <1%, submm 10. Comment: similar to #2	x	x		x		EMP	
SO208 DR67-7	1. Rock Type: pillow fragment 2. Size: 23x18x17 10. Comment: similar to #2	x	x		x		EMP	
SO208 DR67-8	1. Rock Type: pillow fragment 2. Size: 11x9x9 10. Comment: similar to #2				x		EMP	
SO208 DR67-9	1. Rock Type: pillow fragment 2. Size: 13x10x9 10. Comment: similar to #2				x		EMP	
SO208 DR67-10	1. Rock Type: volcanic, slightly altered 2. Size: 23x10x9 3. Shape / Angularity: angular 4. Color of cut surface: light grey, tan 5. Texture / Vesicularity: aphyric, vesicles 3% 7. Matrix: microcrystalline, dense, submm 8. Secondary Minerals: 2nd min. in cracks, vesicles partly filled with FeOH 9. Encrustations: Mn coating 10. Comment: very dense and massive rock	x	x					

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR67-11	1. Rock Type: volcanic, highly altered 2. Size: 18x13x9 3. Shape / Angularity: angular 4. Color of cut surface: dry: grey, brown, yellowish 6. Phenocrysts: pyx: 3%, fresh to altered; fsp: spherolitic 7. Matrix: microcrystalline 8. Secondary Minerals: 2nd min in vesicles, partly altered matrix, FeOH formation 9. Encrustations: Mn coating 10. Comment: very altered looking sample, alteration halo possible to recognize, FeOH in vesicles and partly replacing matrix (?)	x						
SO208 DR67-12-X	1. Rock Type: pillow fragment 2. Size: 30x20x14 10. Comment: similar to #1&#5						archive	
SO208 DR67-13-X	1. Rock Type: pillow fragment 2. Size: 21x13x12 10. Comment: similar to #2,#3,#4						archive	

SO208 DR 68
Description of Location and Structure: N of CNS, 3.4nm WSW of DR67, one ridge further S, southern flank of ridge

Dredge on bottom	UTC 09/08/10 06:53hrs, lat 02°23,95'N, long 91°53,27'W, depth 2462m
Dredge off bottom	UTC 09/08/10 07:48hrs, lat 02°24,29'N, long 91°53,11'W, depth 2319m
total volume:	one very small rock
Comments:	pillow fragment

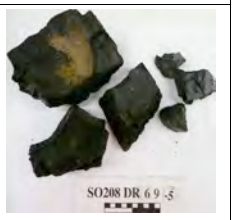
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR68-1	1. Rock Type: pillow fragment, very altered 2. Size: 10x9,5x2 3. Shape / Angularity: angular 4. Color of cut surface: light grey, grey, tan 5. Texture / Vesicularity: dense, vesicles 1% 6. Phenocrysts: Ol: <1%, very altered, mm; fsp: <1%, submm-mm; pyx: <1%, submm 7. Matrix: microcrystalline, submm-mm 8. Secondary Minerals: 2nd min due to alteration, alteration halo along margin 9. Encrustations: Mn coating 10. Comment:	x						

SO208 DR69
Description of Location and Structure: ridge parallel to CNS, S-facing slope, NE of smt "Elly"

Dredge on bottom	UTC 09/08/10 12:35hrs, lat 02°18,83'N, long 91°42,76'W, depth 2411m
Dredge off bottom	UTC 09/08/10 13:24hrs, lat 02°19,07'N, long 91°42,47'W, depth 2278m
total volume:	several rocks
Comments:	basaltic pillow and 1 thick lava flow fragment, little fresh glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR69-1	1. Rock Type: basaltic pillow 2. Size: 25x17x14 3. Shape / Angularity: smooth roundish outer surface, angular broken edges 4. Color of cut surface: dark grey to black 5. Texture / Vesicularity: massive, vesicles 5%, vesicles unfilled, occasionally lined with brownish substance 6. Phenocrysts: fsp: appear fresh, 15-20%, <1mm, needles and tabular crystal shapes 7. Matrix: glassy to cryptocrystalline 8. Secondary Minerals: clacite or zeolithes as crack fillings 9. Encrustations: 3-5mm Mn crust 10. Comment:	x	x		x		EMP	
SO208 DR69-2	1. Rock Type: basaltic pillow 2. Size: 25x17x14 10. Comment: similar to #1	x			x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR69-3	1. Rock Type: basaltic pillow 2. Size: 18x12x11 10. Comment: similar to #1	x			x			
SO208 DR69-4	1. Rock Type: basaltic pillow 2. Size: 21x13x14 5. Texture / Vesicularity: vesicles smaller, 2%, generally empty, massive texture, no glass 6. Phenocrysts: Ol: <1mm, fresh, 2-3%; fsp: fresh, needeles, 15-20% 10. Comment: similar to #1 but less vesicular and less Ol	x	x					
SO208 DR69-5	1. Rock Type: lava flow, basaltic 2. Size: 20x18x13 3. Shape / Angularity: subangular 5. Texture / Vesicularity: massive, dense, vesicles 2-3%, empty 6. Phenocrysts: fsp: blocky, rectangular crystalls, submm, fresh, 1%; fsp: needles, submm, 15%; pyx: needles, submm, 2-3% 7. Matrix: cryptocrystalline 9. Encrustations: Mn crust of 5mm 10. Comment:	x	x		x		EMP	
SO208 DR69-6-X	1. Rock Type: pillow fragment 10. Comment: 3 pieces similar to #1-#3						archive	

SO208 TVG70 **Description of Location and Structure: "Elly" smt, almost on top**	
TVG on bottom	UTC 09/08/10 15:19hrs, lat 02°17,98'N, long 91°44,17'W, depth 2168m
TVG off bottom	UTC 09/08/10 16:10hrs, lat 02°17,81'N, long 91°44,35'W, depth 2307m
total volume:	full
Comments:	sediment plus 2 small pieces of vesicular basalt

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 TVG70-1	1. Rock Type: vesicular basaltic rock 2. Size: 8x5x4 3. Shape / Angularity: subrounded 4. Color of cut surface: dark grey 5. Texture / Vesicularity: massive, dense, vesicles 40-50%, unfilled, some have tiny zeolith aggregates 6. Phenocrysts: fsp: submm, fresh, 20%; Ol: 1mm, appears slightly altered, 1% 10. Comment: rock very similar to earlier dredged vesicular basalt	x						
SO208 TVG70-2	1. Rock Type: vesicular basalt 2. Size: 7x6x4 10. Comment: similar to #1							no picture

SO208 DR71 **Description of Location and Structure: "Elly" smt, northern flank**	
Dredge on bottom	UTC 09/08/10 18:44hrs, lat 02°18,33'N, long 91°44,21'W, depth 2377m
Dredge off bottom	UTC 09/08/10 19:26hrs, lat 02°18,01'N, long 91°44,29'W, depth 2182m
total volume:	empty
Comments:	

Appendix IIb (Rock Description Leg 2)

SO208 DR72
Description of Location and Structure: N of CNS, basin-like depression, N-facing ridge-flank, 4.5 nm E of smt "Elly"

Dredge on bottom	UTC 09/08/10 21:41hrs, lat 02°17,15'N, long 91°40,02'W, depth 2475m
Dredge off bottom	UTC 09/08/10 22:36hrs, lat 02°16,92'N, long 91°40,28'W, depth 2287m
total volume:	few rocks
Comments:	lava fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR72-1	1. Rock Type: lava flow fragment 2. Size: 17x11x10 3. Shape / Angularity: subangular, smooth outer surface 4. Color of cut surface: black to dark grey 5. Texture / Vesicularity: massive, dense, vesicles 2-3%, mostly empty, some with a lining of brown substance 6. Phenocrysts: Ol: <3mm, 1%, appears fresh; fsp: submm, needles, fresh, 5% 7. Matrix: 8. Secondary Minerals: 9. Encrustations: Mn crust 3mm 10. Comment: mostly glassy, fresh rock but breaks into small pieces, odd texture - looks like collapsed vesicles, glass mostly recrystallizing in spreolitic texture	x	x		x		EMP	
SO208 DR72-2	1. Rock Type: pillow fragment, basaltic, altered 2. Size: 20x12x12 3. Shape / Angularity: subangular, smooth surface 4. Color of cut surface: black-grey and brownish 5. Texture / Vesicularity: massive, vesicles 3-4%, often lined with clayey substance 8. Secondary Minerals: tiny Fe-oxide min overgrowth on crystalline center 10. Comment: similar to #1 but towards base higher crystallinity, alteration pervasive	x			x		EMP	
SO208 DR72-3	1. Rock Type: pillow fragment 2. Size: 12x11x7 10. Comment: similar to #2							
SO208 DR72-4	1. Rock Type: pillow fragment 2. Size: 31x14x14 3. Shape / Angularity: angular fragment 9. Encrustations: 5-10mm knobbly Mn crust 10. Comment: similar to #2, reddish/brown-yellow Fe-oxide staining	x					EMP	
SO208 DR72-5	1. Rock Type: pillow fragment 2. Size: 21x15x14 10. Comment: similar to #4							
SO208 DR72-6-X	1. Rock Type: pillow fragments 2. Size: 6x6x6 10. Comment: 3 pieces similar to #2							

SO208 DR73
Description of Location and Structure: N of CNS, E-W striking ridge, along N-facing slope

Dredge on bottom	UTC 10/08/10 03:42hrs, lat 02°27,56'N, long 91°48,73'W, depth 2466m
Dredge off bottom	UTC 10/08/10 04:39hrs, lat 02°27,30'N, long 91°48,88'W, depth 2347m
total volume:	few rocks
Comments:	pillows and pillow fragments, Mn encrusted

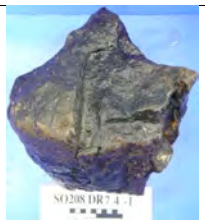
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR73-1	1. Rock Type: pillow fragment, medium - very altered 2. Size: 20x19x13 3. Shape / Angularity: rounded 4. Color of cut surface: dry: light grey, tan 5. Texture / Vesicularity: aphyric, vesicles 3% (partly filled) 6. Phenocrysts: fsp/pyx (?): <1%, platty 7. Matrix: submm-mm, microcrystalline 8. Secondary Minerals: Fe-OH in vesicles, Mn-lining in vesicles, 2nd min in vesicles 9. Encrustations: Mn crust 5mm 10. Comment: alteration halos along margins	x	x		x			

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR73-2	1. Rock Type: pillow fragment, slightly -medium altered 2. Size: 21x10x11 3. Shape / Angularity: subangular-rounded 4. Color of cut surface: dry: light grey, dark grey, tan 10. Comment: simialr to #1	x	x					
SO208 DR73-3	1. Rock Type: pillow basalt 2. Size: 40x22x20 10. Comment: similar to #1	x	x					no picture

SO208 DR74
Description of Location and Structure: N of CNS, northernmost ridge mapped thus so far, track along N-facing slope

Dredge on bottom	UTC 10/08/10 07:15hrs, lat 02°32,20'N, long 91°47,76'W, depth 2579m
Dredge off bottom	UTC 10/08/10 08:40hrs, lat 02°31,67'N, long 91°47,86'W, depth 2405m
total volume:	few rocks
Comments:	two pillow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR74-1	1. Rock Type: pillow, medium - very altered 2. Size: 39x22x21 3. Shape / Angularity: subangular - rounded 4. Color of cut surface: dry: light grey, tan (yellowish/brown) 5. Texture / Vesicularity: aphyric, vesicles 1% (mostly filled) 6. Phenocrysts: pyx: 1-2%, submm-mm, appear fresh; fsp: 1%, submm-mm 7. Matrix: microcrystalline, submm-mm, pyx 8. Secondary Minerals: Fe-OH, vesicles filled with clayey material, Mn-lining of some vesicles 9. Encrustations: Mn crust 1mm 10. Comment: pillow with altered glass crust and thin Mn crust, very altered with alteration zones from margin to center	x	x		x		EMP	
SO208 DR74-2	1. Rock Type: pillow fragment, very altered 2. Size: 11x10x9 3. Shape / Angularity: subangular to rounded 4. Color of cut surface: dry: light grey, tan 5. Texture / Vesicularity: aphyric, dense, vesicles <3% 6. Phenocrysts: fsp: <1%, submm-mm; pyx: <1%, submm-mm 7. Matrix: microcrystalline, fsp, pyx 8. Secondary Minerals: Fe-Oh, vesicles along rim filled with FeOH, Mn and other material, alteration halo along margin 9. Encrustations: Mn crust 3mm 10. Comment:	x					EMP	

SO208 DR75
Description of Location and Structure: CNS just SE of TF; near DR37 of SO158; Caldera-like structure, southern inner slope

Dredge on bottom	UTC 18/08/10 00:27hrs, lat 00°59,61'N, long 90°36,67'W, depth 1612m
Dredge off bottom	UTC 18/08/10 01:19hrs, lat 00°59,32'N, long 90°36,84'W, depth 1490m
total volume:	full
Comments:	sheet-flow fragments, some pillow fragments, few large boulders without glass, overall - lots of glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR75-1	1. Rock Type: volcanic, sheet lava, fresh 2. Size: 24x19x10 3. Shape / Angularity: slab 4. Color of cut surface: bark brown, black 5. Texture / Vesicularity: glassy, amorph 10. Comment: fresh glass for LA-ICP-MS and EMA was sampled, bulk remains in store without beeing analysed				x		EMP	
SO208 DR75-2	1. Rock Type: sheet lava, fresh 2. Size: 23x23x7 10. Comment: very similar to #1				x		EMP	
SO208 DR75-3	1. Rock Type: sheet lava, fresh 2. Size: 20x16x5 10. Comment: very similar to #1				x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR75-4	1. Rock Type: sheet lava, fresh 2. Size: 16x10x7 10. Comment: very similar to #1				x		EMP	
SO208 DR75-5	1. Rock Type: sheet lava, fresh 2. Size: 20x13x4 10. Comment: very similar to #1, no photo was taken				x		EMP	no picture
SO208 DR75-6	1. Rock Type: sheet lava, fresh 2. Size: 15x9x4 10. Comment: very similar to #1, no photo was taken				x		EMP	no picture
SO208 DR75-7	1. Rock Type: sheet lava, fresh 2. Size:11x7x2 10. Comment: very similar to #1, no photo was taken				x		EMP	no picture
SO208 DR75-8	1. Rock Type: sheet lava, fresh 2. Size: 26x17x7 10. Comment: very similar to #1, saddle-like structure, with characteristics of pillow				x		EMP	
SO208 DR75-9	1. Rock Type: sheet lava, fresh 2. Size: 11x9x8 10. Comment: very similar to #1, no photo was taken				x		EMP	no picture
SO208 DR75-10	1. Rock Type: sheet lava, fresh 2. Size: 12x8x6 10. Comment: very similar to #1, no photo was taken				x		EMP	no picture
SO208 DR75-11	1. Rock Type: sheet lava, fresh 2. Size: 17x8x7 10. Comment: very similar to #1				x		EMP	
SO208 DR75-12	1. Rock Type: sheet lava, fresh 2. Size: 18x16x6 10. Comment: very similar to #1				x		EMP	
SO208 DR75-13	1. Rock Type: sheet lava, fresh 2. Size: 10x9x9 10. Comment: very similar to #1				x		EMP	
SO208 DR75-14	1. Rock Type: sheet lava, fresh 2. Size: 15x12x6 10. Comment: very similar to #1, glass only sufficient enough for EMA				x		EMP	
SO208 DR75-15	1. Rock Type: sheet lava, fresh 2. Size: 13x12x6 10. Comment: very similar to #1				x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR75-16	1. Rock Type: sheet lava, fresh 2. Size: 14x12x5 10. Comment: very similar to #1				x		EMP	
SO208 DR75-17	1. Rock Type: sheet lava, fresh 2. Size: 10x8x3 10. Comment: very similar to #1				x		EMP	
SO208 DR75-18	1. Rock Type: sheet lava, fresh 2. Size: 9x7x2,0 10. Comment: very similar to #1				x		EMP	
SO208 DR75-19	1. Rock Type: pillow fragment, fresh, glass 2. Size: 32x23x17 3. Shape / Angularity: subangular - angular 4. Color of cut surface: dry: grey 5. Texture / Vesicularity: aphyric, vesicles <1%, not filled 6. Phenocrysts: fsp: <1%, fresh, platty, mm 7. Matrix: microcrystalline with microphenocrysts 8. Secondary Minerals: 9. Encrustations: 10. Comment: very fresh and dense pillow fragment with glass crust	x	x		x		EMP	
SO208 DR75-20	1. Rock Type: pillow fragment, fresh 2. Size: 40x20x19 3. Shape / Angularity: agular 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, two generations of vesicles - small: partly filled, 10%, mm; vugs: mm-cm, unfilled, 1% 7. Matrix: microcrystalline with microphenocrysts (prob fsp) 8. Secondary Minerals: FeS-lining in vugs and vesicles 9. Encrustations: Mn coating 10. Comment:	x	x					
SO208 DR75-21	1. Rock Type: pillow fragment 2. Size: 32x22x20 10. Comment: similar to #20	x	x					
SO208 DR75-22	1. Rock Type: volcanic, slightly altered 2. Size: 11x9x6 3. Shape / Angularity: angular 4. Color of cut surface: dry: light grey, dark grey 5. Texture / Vesicularity: microcrystalline, vesicles 10% 6. Phenocrysts: fsp: 5%, fresh, needle like, up to 5mm; pyx: fresh, mm, platty 7. Matrix: crystalline 8. Secondary Minerals: FeOH 10. Comment: individual sample, different lithology, very crystalline	x	x					
SO208 DR75-23-X	1. Rock Type: pillow fragments 2. Size: 30x21x16 10. Comment: similar to #21 and #22						archive	
SO208 DR75-24-X	1. Rock Type: sheet lava 10. Comment: 13 pieces of sheet lava with fresh glass						archive	

Appendix IIb (Rock Description Leg 2)

SO208 DR76
Description of Location and Structure: S of transform fault, NE facing slope of ridge going into small village

Dredge on bottom	UTC 18/08/10 03:46hrs, lat 01°02,87'N, long 90°42,27'W, depth 1937m
Dredge off bottom	UTC 18/08/10 04:49hrs, lat 01°02,65'N, long 90°42,52'W, depth 1744m
total volume:	1/4 full
Comments:	several large boulders of pillow and sheet lava, glass abundant but not so fresh at first sight

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR76-1	1. Rock Type: volcanic, pillow, slightly altered 2. Size: 33x30x24 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, vesicles <1%, mm-submm, vug with Mn-lining 6. Phenocrysts: fsp: fresh, mm-cm, blocky, rectangular, 5%; pyx: fresh, mm-cm, platty, 3% 7. Matrix: microcrystalline with microphenocrysts, fsp: needle-like, 25% 9. Encrustations: Mn coating 10. Comment: representative sample with cooling fractures parallel to cooling surface	x	x		x		EMP	
SO208 DR76-2	1. Rock Type: volcanic, pillow, slightly altered 2. Size: 35x26x23 5. Texture / Vesicularity: aphyric, vesicles <1%, submm 6. Phenocrysts: pyx: fresh, 3%, blocky, mm-cm; fsp: fresh, 5%, platty, mm-cm; Ol(?): altered, <1%, mm-cm 7. Matrix: microcrystalline 9. Encrustations: Mn coating 10. Comment: similar to #1	x	x		x		EMP	
SO208 DR76-3	1. Rock Type: volcanic, pillow, fresh - slightly altered 2. Size: 36x30x23 3. Shape / Angularity: subangular with rounded top 10. Comment: similar to #2	x	x		x		EMP	
SO208 DR76-4	1. Rock Type: volcanic, pillow, fresh 2. Size: 46x36x23 3. Shape / Angularity: subangular 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: pophyric, vesicles <1% 6. Phenocrysts: fsp: 30%, mm-cm, fresh, needle like, rectangular; pyx: mm-cm, fresh, blocky, <5% 7. Matrix: dense, crypto-microcrystalline, submm-mm 9. Encrustations: Mn coating 10. Comment: pillow without glass	x	x					
SO208 DR76-5	1. Rock Type: volcanic, fresh, pillow fragment 2. Size: 22x15x12 6. Phenocrysts: pyx: fresh, blocky, cm, 3%; fsp: fresh, needle like, cm, 10% 10. Comment: similar to #1	x			x		EMP	
SO208 DR76-6	1. Rock Type: volcanic, pillow fragment, fresh 2. Size:26x21x14 10. Comment: similar to #1				x		EMP	
SO208 DR76-7	1. Rock Type: volcanic, pillow fragment, fresh 2. Size: 23x23x15 10. Comment: similar to #1				x		EMP	
SO208 DR76-8-X	1. Rock Type: volcanic, pillow fragment 2. Size: 23x15x10 10. Comment: similar to #1, representative for sampled bulk						archive	

Appendix IIb (Rock Description Leg 2)

SO208 DR77
Description of Location and Structure: southern tip of 91°TF; split smt, western half along E-facing slope

Dredge on bottom	UTC 18/08/10 07:26hrs, lat 01°05,62'N, long 90°42,24'W, depth 2067m
Dredge off bottom	UTC 18/08/10 08:09hrs, lat 01°05,43'N, long 90°42,39'W, depth 1871m
total volume:	1/6 full
Comments:	pillows and pillow fragments, very little fresh glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR77-1	1. Rock Type: pillow, altered - fresh in center 2. Size: 34x23x23 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dark grey (fresh parts) 5. Texture / Vesicularity: porphyric, vesicles 15% 6. Phenocrysts: fsp: submm-mm, 20%, fresh 7. Matrix: microcrystalline, submm-mm, fsp 9. Encrustations: glass crust 3-5mm 10. Comment: glass altered	x	x		x		EMP	
SO208 DR77-2	1. Rock Type: pillow, fresh - altered 2. Size: 27x23x16 3. Shape / Angularity: subangular 4. Color of cut surface: wet: dark grey 5. Texture / Vesicularity: porphyric, vesicles 10%, partly lined with FeOH 6. Phenocrysts: fsp: submm-mm, 10%, fresh 7. Matrix: microcrystalline, 10%, fresh 8. Secondary Minerals: FeOH 10. Comment: does not have typial pillow form but has same cooling structures	x	x					
SO208 DR77-3	1. Rock Type: pillow, very fresh 2. Size: 31x30x20 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: light-dark grey 5. Texture / Vesicularity: porphyric, vesicles 10% 6. Phenocrysts: fsp: submm-mm, fresh, 10%; pyx: submm-mm, fresh, 3% 7. Matrix: microcrystalline, fsp pyx 8. Secondary Minerals: 9. Encrustations: 10. Comment: similar to #1 and #2 with fresh minerals	x	x					
SO208 DR77-4	1. Rock Type: pillow, altered surface 2. Size: 34x20x13 3. Shape / Angularity: subangular 4. Color of cut surface: dark grey 5. Texture / Vesicularity: fine grained, very dense, vesicles 1% 6. Phenocrysts: fsp: submm-mm, 40%, fresh; pyx: submm, 40%, fresh; Ol: 1 piece 7. Matrix: microcrystalline, submm, fsp, pyx 10. Comment: very fresh sample with Ol	x	x					
SO208 DR77-5	1. Rock Type: pillow, fresh 2. Size: 15x10x8 3. Shape / Angularity: subangular 4. Color of cut surface: light grey 5. Texture / Vesicularity: porphyric 6. Phenocrysts: similar to #3 but Ol: submm-mm, 10% 10. Comment: similar to #3	x						
SO208 DR77-6-X - SO208 DR77-11-X	1. Rock Type:pillow fragments 10. Comment: glass has been chipped of for EMA						archive / EMP	

SO208 DR78
Description of Location and Structure: E of 91° TF; NW of Caldera I, NE slope beneath circular cone

Dredge on bottom	UTC 18/08/10 10:49hrs, lat 01°01,75'N, long 90°38,20'W, depth 1793m
Dredge off bottom	UTC 18/08/10 12:01hrs, lat 01°01,36'N, long 90°38,38'W, depth 1592m
total volume:	three small rocks
Comments:	basaltic pillows

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR78-1	1. Rock Type: pillow, very fresh 2. Size: 21x14x11 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dark grey 5. Texture / Vesicularity: porphyric, vesicles 10% 6. Phenocrysts: fsp: submm-mm, 7%, fresh 7. Matrix: microcrystalline, fsp 8. Secondary Minerals: vesicles near surface are lined with FeOH 9. Encrustations: glass crust 3mm 10. Comment:	x			x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR78-2	1. Rock Type: pillow tube 2. Size: 19x11x10 3. Shape / Angularity: angular - subangular 4. Color of cut surface: dark grey 5. Texture / Vesicularity: aphyric, vesicles 5%, bigger vesicles in center (ca 1mm) 6. Phenocrysts: fsp: submm, 7%, fresh; Ol: <1%, altered 8. Secondary Minerals: FeOH in cracks and vesicles 10. Comment: similar to #1				x		EMP	
SO208 DR78-3	1. Rock Type: pillow 2. Size: 9x9x8 6. Phenocrysts: similar to #1 but Ol: mm, 1-2% 10. Comment: similar to #1				x		EMP	

SO208 DR79
Description of Location and Structure: eastern caldera on CNS; inner caldera wall, N-facing slope

Dredge on bottom	UTC 18/08/10 14:32hrs, lat 00°56,79'N, long 90°33,10'W, depth 1599m
Dredge off bottom	UTC 18/08/10 15:20hrs, lat 00°56,56'N, long 90°33,20'W, depth 1516m
total volume:	1/3 full
Comments:	basaltic pillows and sheet lava; piece with pahoehoe structure as exposition sample

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR79-1	1. Rock Type: pillow basalt fragment with thin glassy crust 2. Size: 32x25x15 3. Shape / Angularity: angular broken edge, smooth outher surface 4. Color of cut surface: dark grey 5. Texture / Vesicularity: massive, ranging from glassy at rim to cryptocrystalline in interior, vesicles 5-7% 6. Phenocrysts: fsp: needles, submm, fresh, 15%; Ol: fresh, <1mm, 1-2% 7. Matrix: dense, fsp, pyx 10. Comment: good fresh basalt, glass crust mostly spalled off (small sample only)	x	x		x		EMP	
SO208 DR79-2	1. Rock Type: pillow basalt fragment 2. Size: 35x18x16 6. Phenocrysts: similar to #1 but Ol <1mm, fresh, 2-3% 10. Comment: similar to #1 with thin glassy crust which was not sampled							
SO208 DR79-3	1. Rock Type: pillow basalt fragment 2. Size: 13x9x9 6. Phenocrysts: fsp: 20%, fresh, needles, up to 1,5mm; Ol: 2-3%, up to 2mm, fresh 10. Comment: similar to #1							
SO208 DR79-4	1. Rock Type: sheet lava, glass-rich, aphanitic 2. Size: 16x10x7 3. Shape / Angularity: highly irregular 4. Color of cut surface: dark grey to black 5. Texture / Vesicularity: flow banding, vesicles 5%, partly lined with FeS 7. Matrix: glassy to very fine, cryptocrystalline, poss fsp, pyx, fresh 9. Encrustations: glass crust 5-10mm 10. Comment: pahoehoe-structures along flow top, block brittel, highly fractured -> TS piece very small	x			x		EMP	
SO208 DR79-5	1. Rock Type: sheet lava 2. Size: 10x9x6 10. Comment: similar to #4				x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR79-6	1. Rock Type: sheet lava 2. Size: 11x10x9 10. Comment: similar to #4				x		EMP	
SO208 DR79-7	1. Rock Type: sheet lava 2. Size: 12x9x9 10. Comment: similar to #4				x		EMP	
SO208 DR79-8	1. Rock Type: sheet lava 2. Size: 10x8x4 10. Comment: similar to #4, beautiful ropey pahoehoe-structure preserved to exhibit							
SO208 DR79-9-X	1. Rock Type: sheet lava 10. Comment: 8 pieces of sheet lava similar to #4						archive	
SO208 DR79-10-X	1. Rock Type: pillow basalt fragments 10. Comment: 2 pieces similar to #1-#3						archive	

SO208 DR80 **Description of Location and Structure: split smt on CNS, southern half of smt, N-facing steep flank**	
Dredge on bottom	UTC 18/08/10 18:06hrs, lat 00°55,45'N, long 90°24,01'W, depth 1560m
Dredge off bottom	UTC 18/08/10 18:38hrs, lat 00°55,20'N, long 90°23,96'W, depth 1515m
total volume:	1/4 full
Comments:	basaltic pillow fragments and massive lava flow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR80-1	1. Rock Type: pillow fragment, fairly fresh 2. Size: 27x25x19 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, vesicles: 20%, two generations of vesicles 6. Phenocrysts: fsp: submm-mm, 15%, fresh, platty 7. Matrix: massive, dense, microcrystalline 8. Secondary Minerals: FeS-lining in vesicles 9. Encrustations: Mn coating 10. Comment: representative sample with fairly fresh glass sampled for LA-ICPMS and EMA, seems to be same lithology through entire dredge	x	x		x		EMP	no picture
SO208 DR80-2	1. Rock Type: pillow fragment, fairly fresh 2. Size: 43x17x15 10. Comment: similar to #1	x			x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR80-3	1. Rock Type: pillow fragment 2. Size: 14x12x10 6. Phenocrysts: similar to #1 plus pyx: submm-mm, blocky, <1% 10. Comment: similar to #1 but differences in abundance of pyx	x	x		x		EMP	
SO208 DR80-4	1. Rock Type: pillow fragment, fairly fresh 2. Size: 13x12x6 10. Comment: similar to #1						EMP	
SO208 DR80-5	1. Rock Type: pillow fragment 2. Size: 19x18x13 10. Comment: only glass was sampled, lithology seEMA to be same material as previous samples				x		EMP	
SO208 DR80-6	1. Rock Type: pillow fragment, fairly fresh 2. Size: 15x13x12 10. Comment: similar to #5				x		EMP	
SO208 DR80-7	1. Rock Type: pillow fragment, fairly fresh 2. Size: 23x18x11 10. Comment: similar to #5				x		EMP	
SO208 DR80-8-X	1. Rock Type: pillow fragments 10. Comment: 4 pieces of pillow fragments which are representative and have glass							
SO208 DR80-9-X	1. Rock Type: pillow fragment 2. Size: 15x11x9 10. Comment: representative sample for bulk							

Appendix IIb (Rock Description Leg 2)

SO208 DR81
Description of Location and Structure: CNS, in between split smt, flat seafllor right between the two halves of the split smt

Dredge on bottom	UTC 18/08/10 20:06hrs, lat 00°55,52'N, long 90°24,35'W, depth 1558m
Dredge off bottom	UTC 18/08/10 20:33hrs, lat 00°55,46'N, long 90°24,10'W, depth 1569m
total volume:	few rocks (2)
Comments:	pillow fragments with fresh glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR81-1	1. Rock Type: pillow fragment, fairly fresh 2. Size: 19x17x14 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, vesciles 20%, unfilled 6. Phenocrysts: fsp: fresh, 10%, needle like, submm-mm 7. Matrix: massive, dense, microcrystalline, submm-mm 8. Secondary Minerals: FeS-lining in vesicles 9. Encrustations: MN coating 10. Comment: fresh glass and fresh looking basalt sample	x	x		x		EMP	
SO208 DR81-2	1. Rock Type: pillow fragment, fairly fresh 2. Size: 20x12x12 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, vesicles 30%, unfilled 6. Phenocrysts: fsp: fresh, submm-mm, 10% 7. Matrix: cryptocrystalline - microcrystalline 8. Secondary Minerals: Mn-lining and FeS-lining in vesicles 9. Encrustations: Mn coating 10. Comment: very similar to #1 but higher vesicularity	x	x		x		EMP	

SO208 DR82
Description of Location and Structure: North of CNS; ridge parallel ridge (E-W-oriented), S-facing slope; ca. 12km N of CNS, 15nm E of DR81

Dredge on bottom	UTC 18/08/10 23:35hrs, lat 01°02,66'N, long 90°12,96'W, depth 2404m
Dredge off bottom	UTC 19/08/10 00:42hrs, lat 01°02,83'N, long 90°11,80'W, depth 2221m
total volume:	1/3 full
Comments:	basaltic pillow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR82-1	1. Rock Type: volcanic, pillow fragment, medium altered 2. Size: 25x18x15 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dry: light grey, tan 5. Texture / Vesicularity: aphyric, vesicles <3% 6. Phenocrysts: fsp: fresh, needle like, submm; pyx: submm, blocky, in vesicles (?) 7. Matrix: crypto-microcrystalline 8. Secondary Minerals: vesicles filled with FeOH along margin 9. Encrustations: Mn crust 10. Comment: <10mm alteration halo along margins	x	x		x		EMP	
SO208 DR82-2	1. Rock Type: pillow fragment, slightly altered 2. Size: 46x30x20 10. Comment: very similar to #1	x	x		x		EMP	
SO208 DR82-3	1. Rock Type: pillow fragment, medium - very altered 2. Size: 20x13x11 3. Shape / Angularity: subrounded 4. Color of cut surface: dry: light grey, tan 5. Texture / Vesicularity: aphyric, vesicles 5%, elongated vesicles close to top 7. Matrix: micro-cryptocrystalline, submm-mm 8. Secondary Minerals: vesicles filled with FeOH within alteration halo 9. Encrustations: Mn crust 5mm 10. Comment: very altered sample, >10mm alteration halo	x	x		x		EMP	
SO208 DR82-4	1. Rock Type: pillow fragment, medium altered 2. Size: 32x18x17 10. Comment: similar to #1 but does not contain glass	x	x					
SO208 DR82-5	1. Rock Type: pillow fragment, medium altered 2. Size: 31x22x18 10. Comment: very similar to #1 but does not contain glass, bulk very fresh even though there is a alteration halo, GC is possible	x						

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR82-6	1. Rock Type: volcaninc, medium altered 2. Size: 20x18x14 3. Shape / Angularity: rounded 4. Color of cut surface: alteration halo: light grey; fresher interior: dark grey, tan 5. Texture / Vesicularity: apphyric, vesicles 15%, filled along margin with FeOH 6. Phenocrysts: fsp: fresh, submm, needle like 7. Matrix: crypto-microcrystalline 8. Secondary Minerals: FeOH in vesicles within alteration halo 9. Encrustations: Mn crust <5mm 10. Comment: very rounded volcanic rock, bigger vesicles (1-2mm) concentrated on one part of the rock, pieces of volcanic breccia on top	x	x					
SO208 DR82-7	1. Rock Type: volcaninc, medium altered 2. Size: 22x16x11 10. Comment: similar to #6 but part of volcanic brecczia is much bigger	x						
SO208 DR82-8	1. Rock Type: volcanic, medium altered 2. Size: 20x15x10 3. Shape / Angularity: subrounded - subangular 4. Color of cut surface: dry: light grey/dark grey 5. Texture / Vesicularity: aphyric, vesicles 15% 6. Phenocrysts: fsp: fresh, needle like, submm, 5% 7. Matrix: crypto-microcrystalline 8. Secondary Minerals: FeOH 9. Encrustations: Mn crust 1mm 10. Comment: similar to #1 but no glass and higher vesicularity	x						
SO208 DR82-9	1. Rock Type: pillow top 2. Size: 13x11x9 10. Comment: only glass was sampled, bulk was to little				x		EMP	
SO208 DR82-10	1. Rock Type: pillow top 2. Size: 15x12x10 10. Comment: only glass was sampled, bulk was to little				x		EMP	
SO208 DR82-11	1. Rock Type: pillow top 2. Size: 19x10x10 10. Comment: only glass was sampled, bulk was to little				x		EMP	
SO208 DR82-12	1. Rock Type: pillow top 2. Size: 11x9x8 10. Comment: only glass was sampled, bulk was to little				x		EMP	
SO208 DR82-13	1. Rock Type: pillow top 2. Size: 9x7x4 10. Comment: only glass was sampled, bulk was to little				x		EMP	
SO208 DR82-14	1. Rock Type: pillow top 2. Size: 11x10x9 10. Comment: only glass was sampled, bulk was to little				x		EMP	

Appendix IIb (Rock Description Leg 2)

SO208 DR83
Description of Location and Structure: N of CNS; E-W striking ridge, 1.5nm SSE of DR82

Dredge on bottom	UTC 19/08/10 02:43hrs, lat 01°01,24'N, long 90°12,20'W, depth 2285m
Dredge off bottom	UTC 19/08/10 03:45hrs, lat 01°01,51'N, long 90°11,59'W, depth 2081m
total volume:	1/3 full
Comments:	sheet and pillow lava, some spectacular lava flow features (e.g. pahoehoe)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR83-1	1. Rock Type: sheet lava 2. Size: 6,5x5x2,5 3. Shape / Angularity: angular 4. Color of cut surface: dark brown, grey 5. Texture / Vesicularity: aphyric 7. Matrix: amorph, cryptocrystalline 9. Encrustations: Mn coating 10. Comment: small piece of sheet lava, glass (fresh) was sampled				x		EMP	
SO208 DR83-2	1. Rock Type: sheet lava 2. Size: 6x6x4 10. Comment: similar to #1				x		EMP	
SO208 DR83-3	1. Rock Type: sheet lava 2. Size: 8x6x2 10. Comment: similar to #1				x		EMP	
SO208 DR83-4	1. Rock Type: sheet lava 2. Size: 10x8x7 10. Comment: similar to #1				x		EMP	
SO208 DR83-5	1. Rock Type: sheet lava 2. Size: 9x8x4 10. Comment: similar to #1				x		EMP	
SO208 DR83-6	1. Rock Type: sheet lava 2. Size: 11x9x7 10. Comment: similar to #1				x		EMP	
SO208 DR83-7	1. Rock Type: sheet lava 2. Size: 9x7x7 10. Comment: similar to #1				x		EMP	
SO208 DR83-8	1. Rock Type: hyaloclastite 2. Size: 23x20x17 3. Shape / Angularity: subangular - rounded 4. Color of cut surface: dark grey 10. Comment: hyaloclastite with basalt core and brecczia-like surrounding, glass partly palagonitizised, glass pieces few cm of size, sediment incorporated into rocks, vugs and filled elongated vesicles				x		EMP	

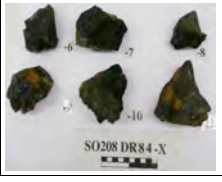
Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR83-9	1. Rock Type: hyaloclastite, less glass 2. Size: 20x32x17 9. Encrustations: 5mm Mn crust 10. Comment: similar to #8 but very little glass chipped off for EMA, smaple #8 much better in terms of glass				x		EMP	
SO208 DR83-10	1. Rock Type: pillow lava with glassy margin, very fresh 2. Size: 30x25x17 3. Shape / Angularity: pillow rounded 4. Color of cut surface: dry: medium grey 5. Texture / Vesicularity: aphyric, fine grained, vesicles 1-2%, open, submm, 1-3% mm sized degassing vesicles/pipes 7. Matrix: dense 8. Secondary Minerals: some vesicles lined with Mn 9. Encrustations: 1-2mm Mn crust 10. Comment: glass separation needs extreme ... due to mixture with Mn crust	x	x		x		EMP	
SO208 DR83-11	1. Rock Type: pillow lava 2. Size: 25x22x16 10. Comment: similar to #10	x	x		x		EMP	
SO208 DR83-12	1. Rock Type: pillow lava with 1-3mm thick glassy margin 2. Size: 26x15x15 10. Comment: similar to #10 but has fsp px <0.5%; glass chipped off, one piece as whole rock backup				x		EMP	
SO208 DR83-13	1. Rock Type: pillow lava 2. Size: 28x20x18 8. Secondary Minerals: slightly more abundant lining and filling of vesicles with Fe-oxyhydroxide	x	x		x		EMP	
SO208 DR83-14	1. Rock Type: pillow lava with glassy margin, very fresh 2. Size: 27x16x16 10. Comment: glass chipped off, saved larger piece as whole rock backup				x		EMP	
SO208 DR83-15	1. Rock Type: small pillow with glass margin 2. Size: 18x12x9 5. Texture / Vesicularity: abundant vesicles at pillow margin 8. Secondary Minerals: yellow staining of cooling fracture				x		EMP	
SO208 DR83-16	1. Rock Type: massive angular block of lava, fairly fresh 2. Size: 24x18x17 3. Shape / Angularity: angular could be interior of pillow due to triangle structure 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, fine grained, 5% vesicles, 0,5mm, open 9. Encrustations: Mn coating 10. Comment: samples looks different from all other rocks in dredge	x	x					

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR83-17-X	1. Rock Type: 4 pieces of hyaloclastite, similar to #8						archive	
SO208 DR83-18-X	1. Rock Type:pillow fragment 10. Comment: 2 pieces similar to #10-#16 with glassy top						archive	
SO208 DR83-19-X	1. Rock Type: lava 10. Comment: sheet flow with nice pahoehoe structure on top, taken for display						archive	no picture

SO208 DR84
Description of Location and Structure: N of CNS; SW of DR83, E-W striking ridge along it´s southern slope, closest to the CNS

Dredge on bottom	UTC 19/08/10 06:12hrs, lat 00°58,86'N, long 90°17,68'W, depth 2121m
Dredge off bottom	UTC 19/08/10 07:09hrs, lat 00°59,12'N, long 90°17,32'W, depth 1994m
total volume:	1/3 full
Comments:	large pillow and pillow fragments, minor fresh glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR84-1	1. Rock Type: pillow lava, slightly altered along alteration halo 2. Size: 26x24x18 3. Shape / Angularity: angular to pillow shaped rounded 4. Color of cut surface: dry: medium grey 5. Texture / Vesicularity: aphyric, fine grained, vesicles 10%, 0,5-1mm, open 6. Phenocrysts: 7. Matrix: 8. Secondary Minerals: Fe-Oxyhydroxide filling of vesicles along outer alteration halo 9. Encrustations: Mn crust 3-5mm on top of glassy margin 10. Comment: very little fresh glass, lots of Mn mixed with glass	x	x		x		EMP	
SO208 DR84-2	1. Rock Type: pillow lava 2. Size: 20x18x12 4. Color of cut surface:medium to light grey 7. Matrix: fsp microphenocrysts in gm 9. Encrustations: Mn crust covers glassy margin 1-2mm 10. Comment: similar to #1 but less vesicles, almost dense	x	x		x		EMP	
SO208 DR84-3	1. Rock Type: pillow lava 2. Size: 27x16x14 3. Shape / Angularity: rounded 4. Color of cut surface: dry: light grey 5. Texture / Vesicularity: fine grained, dense basalt, 1cm thick zone of degassing vesicles below chilled margin 7. Matrix: aphyric 9. Encrustations: 1-2mm Mn crust covering glass margin 10. Comment:similar to previous samples but dense groundmass, glassy margin and little fresh glass preserved	x	x		x		EMP	
SO208 DR84-4	1. Rock Type: pillow lava, fresh 2. Size: 42x35x28 4. Color of cut surface: medium grey 5. Texture / Vesicularity: aphyric, 5-10% vesicles, open, 0,5-2mm 10. Comment: largest piece in dredge, very badly preserved otherwise similar to previous samples	x	x		x		EMP	
SO208 DR84-5	1. Rock Type: pillow lava 2. Size: 26x24x18 4. Color of cut surface: medium grey 10. Comment: similar to previous samples	x	x		x		EMP	
SO208 DR84-6-X to SO208 DR84-11-X	1. Rock Type: small pillow fragments with fresh glass 10. Comment: glass chipped off for EMA to test for heterogenities within dredge				x		archive, EMP	

Appendix IIb (Rock Description Leg 2)

SO208 DR85 **Description of Location and Structure: northern part of 2nd split smt, steep S-facing slope of smt just N of CNS**	
Dredge on bottom	UTC 19/08/10 18:44hrs, lat 00°49,64'N, long 89°31,70'W, depth 1845m
Dredge off bottom	UTC 19/08/10 18:44hrs, lat 00°49,64'N, long 89°31,70'W, depth 1845m
total volume:	empty
Comments:	

SO208 DR86 **Description of Location and Structure: N of CNS, E-W trending ridge, ca 6km N of active ridge, N-facing slope**	
Dredge on bottom	UTC 19/08/10 21:25hrs, lat 00°52,74'N, long 89°33,34'W, depth 2137m
Dredge off bottom	UTC 19/08/10 21:58hrs, lat 00°52,49'N, long 89°33,18'W, depth 2070m
total volume:	empty
Comments:	

SO208 DR87 **Description of Location and Structure: 2 split smt, northern half of smt, N-facing flank, site N of DR85**	
Dredge on bottom	UTC 19/08/10 23:58hrs, lat 00°50,75'N, long 89°31,88'W, depth 1958m
Dredge off bottom	UTC 20/08/10 01:05hrs, lat 00°50,27'N, long 89°31,85'W, depth 1674m
total volume:	1/7 full
Comments:	sheet lava fragments, alltempt to sample base of smt and smt itself (ideally!)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR87-1	1. Rock Type: sheet lava, medium altered 2. Size: 28x18x14 3. Shape / Angularity: slab 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, vesicles 5%, bonds of vesicles 6. Phenocrysts: fsp: fresh, cm-mm, platty, 1% 7. Matrix: microcrystalline 10. Comment: representative sample (only sheet lava was collected), sample was big enough to cut block for GC and TS, very brittle, vesicles filled with sediment, cooling fractures parallel to top	x	x		x		EMP	no picture
SO208 DR87-2	1. Rock Type: sheet lava 2. Size: 23x13x17 10. Comment: similar to #1 but not large enough for GC and TS				x		EMP	
SO208 DR87-3	1. Rock Type: sheet lava 2. Size: 27x18x16 10. Comment: similar to #1 but not large enough for GC and TS				x		EMP	
SO208 DR87-4	1. Rock Type: sheet lava 2. Size: 14x12x3 10. Comment: similar to #1 but not large enough for GC and TS				x		EMP	
SO208 DR87-5	1. Rock Type: sheet lava 2. Size: 14x8x5 10. Comment: similar to #1 but not large enough for GC and TS				x		EMP	
SO208 DR87-6	1. Rock Type: sheet lava 2. Size: 15x11x3,5 10. Comment: similar to #1 but not large enough for GC and TS				x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR87-7	1. Rock Type: sheet lava 2. Size: 14x10x6 10. Comment: similar to #1 but not large enough for GC and TS				x		EMP	
SO208 DR87-8	1. Rock Type: sheet lava 2. Size: 23x13x17 10. Comment: similar to #1 but not large enough for GC and TS				x		EMP	
SO208 DR87-9	1. Rock Type: sheet lava 2. Size: 15x11x4 10. Comment: similar to #1 but not large enough for GC and TS				x		EMP	
SO208 DR87-10	1. Rock Type: sheet lava 2. Size:25x15x5 10. Comment: similar to #1 but not large enough for GC and TS				x		EMP	
SO208 DR87-11-X	1. Rock Type: sheet lava 10. Comment: 3 pieces for archive						archive	

SO208 DR88 **Description of Location and Structure: second major ridge N of CNS, N of DR86, N-facing slope**	
Dredge on bottom	UTC 20/08/10 03:20hrs, lat 00°54,06'N, long 89°34,97'W, depth 2244m
Dredge off bottom	UTC 20/08/10 04:18hrs, lat 00°53,77'N, long 89°34,76'W, depth 2095m
total volume:	two rocks only
Comments:	1xpillow, 1xsheet lava

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR88-1	1. Rock Type: pillow fragment, slightly altered 2. Size: 14x10x7 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dark grey 5. Texture / Vesicularity: aphyric, vesicles 3% 6. Phenocrysts: fsp: fresh, submm, 3&, platty + needle like; Ol(?): <1%, fresh, submm; pyx: fresh, submm, blocky 7. Matrix: microcrystalline 8. Secondary Minerals: FeOH 10. Comment: thin glass layer but very altered, only bulk sample	x	x					
SO208 DR88-2	1. Rock Type: sheet lava 2. Size: 9x7x4 3. Shape / Angularity: slab 4. Color of cut surface: dark grey 5. Texture / Vesicularity: aphyric 7. Matrix: cryptocrystalline - glassy 8. Secondary Minerals: palagonite 10. Comment: contains fresh glass which was sampled				x		EMP	

Appendix IIb (Rock Description Leg 2)

SO208 DR89
Description of Location and Structure: lava flow infilling graben structure (depression); E-W trending structure parallel to CNS towards the N, dredging at N-W-facing slope

Dredge on bottom	UTC 20/08/10 06:52hrs, lat 00°53,37'N, long 89°28,87'W, depth 2185m
Dredge off bottom	UTC 20/08/10 07:38hrs, lat 00°53,03'N, long 89°28,76'W, depth 2056m
total volume:	few rocks
Comments:	pillow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR89-1	1. Rock Type: pillow 2. Size: 25x20x18 3. Shape / Angularity: subangular, rounded top 4. Color of cut surface: drey, light grey along fissures 5. Texture / Vesicularity: aphyric, vesicles 7%, partly filled with Mn od FeOH, mainly filled with Calcitecrystalls, submm-mm 6. Phenocrysts: 7. Matrix: dense, microcrystalls Calcite 8. Secondary Minerals: FeOH, Calcite 9. Encrustations: Mn crust 1-3mm 10. Comment: glass but very altered, 2mm	x	x		x		EMP	
SO208 DR89-2	1. Rock Type: pillow 2. Size: 28x12x19 3. Shape / Angularity: subangular rounded top 4. Color of cut surface: grey 5. Texture / Vesicularity: aphyric, 5% vesicles, filled with FeOH near surface, mainly with calcite 9. Encrustations: Mn crust 3mm 10. Comment: similar to #1, glass at top 3mm, green minerals in vesicles, obviously calcite	x	x		x		EMP	
SO208 DR89-3	1. Rock Type: pillow fragment 2. Size: 25x13x11 3. Shape / Angularity: subangular 4. Color of cut surface: grey, lighter along fissures 5. Texture / Vesicularity: porphyric, vesicles 6%, filled with Mn and Calcite 6. Phenocrysts: fsp: <1%, fresh, up to 3mm; Ol: 1%, fresh, up to 2mm 7. Matrix: dense, microcrystalline 8. Secondary Minerals: calcite, 1mm 9. Encrustations: Mn coating 10. Comment: little bit of glass	x	x		x		EMP	
SO208 DR89-4	1. Rock Type: pillow fragment, altered 2. Size: 9x8x8 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dark grey 5. Texture / Vesicularity: aphyric, vesicles 1%, unfilled 9. Encrustations: Mn coating 10. Comment: glass ca 3mm at top				x		EMP	
SO208 DR89-5	1. Rock Type:pillow fragment 2. Size: 13x13x12 3. Shape / Angularity: subangular with rounded top 10. Comment: only glass was sampled, no fresh broken surface therefore no detailed description				x		EMP	
SO208 DR89-6	1. Rock Type: pillow fragment 2. Size: 13x8x7 10. Comment: similar to #5				x		EMP	
SO208 DR89-7	1. Rock Type: pillow fragment 2. Size: 13x12x10 3. Shape / Angularity: angular - subangular 10. Comment: similar to #5				x		EMP	
SO208 DR89-8	1. Rock Type: pillow fragment 2. Size: 9x7x6 3. Shape / Angularity: angular-subangular with rounded top 4. Color of cut surface: dark grey 5. Texture / Vesicularity: aphyric, 1% vesicles, unfilled 7. Matrix: dense 8. Secondary Minerals: FeOH in cracks 9. Encrustations: Mn coating 10. Comment: glass at top 1-3mm				x		EMP	no picture

Appendix IIb (Rock Description Leg 2)

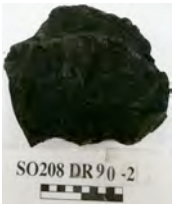
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR89-9	1. Rock Type: pillow 2. Size: 9x8x6 10. Comment: similar to #8				x		EMP	
SO208 DR89-10	1. Rock Type: pillow 2. Size:9x7x7 10. Comment: similar to #8				x		EMP	
SO208 DR89-11	1. Rock Type: pillow 2. Size: 6x4x3 10. Comment: similar to #8				x		EMP	
SO208 DR89-12	1. Rock Type: pillow 2. Size: 10x8x5 10. Comment: similar to #8				x		EMP	
SO208 DR89-13	1. Rock Type: pillow 2. Size: 9x7x6 10. Comment: similar to #8				x		EMP	
SO208 DR89-14	1. Rock Type: pillow 2. Size: 6x5x4 10. Comment: similar to #8				x		EMP	

SO208 DR90
Description of Location and Structure: 1nm N of DR89, E-W striking trough N of small lava field, N-facing slope

Dredge on bottom	UTC 20/08/10 09:23hrs, lat 00°53,91'N, long 89°27,87'W, depth 2296m
Dredge off bottom	UTC 20/08/10 10:18hrs, lat 00°53,59'N, long 89°27,99'W, depth 2136m
total volume:	few rocks
Comments:	pillow and pillow fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR90-1	1. Rock Type: pillow 2. Size: 19x16x15 3. Shape / Angularity: subangular rounded top 4. Color of cut surface: grey 5. Texture / Vesicularity: porphyric, vesicles, 1%, Mn-lining 6. Phenocrysts: fsp: submm-mm, fresh, bigger ones are altered and yellowish 7. Matrix: dense, microcrystalline, fsp 10. Comment: glass 2mm, mainly altered	x	x		x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR90-2	1. Rock Type: pillow 2. Size: 21x15x14 3. Shape / Angularity: subangular-rounded top 4. Color of cut surface: grey 6. Phenocrysts: fsp: submm-mm, more altered then in #1 7. Matrix: dense, micrystalline, fsp 8. Secondary Minerals: FeOH 9. Encrustations: Mn crust 2mm 10. Comment: similar to #1 with glass but very altered - no glass was sampled	x	x					
SO208 DR90-3	1. Rock Type: pillow 2. Size: 11x10x9 3. Shape / Angularity: angular, rounded top 4. Color of cut surface: grey 9. Encrustations: Mn coating 10. Comment: similar to #1 with glass 2mm, not fresh				x		EMP	
SO208 DR90-4	1. Rock Type: pillow 2. Size: 18x14x14 3. Shape / Angularity: angular 9. Encrustations: Mn crust 2mm 10. Comment: glass very altered, no fresh surface therefore no description							
SO208 DR90-5	1. Rock Type: pillow 2. Size: 5x6x6 3. Shape / Angularity: angular 10. Comment: similar to #1 with glass fresh, 5mm, no Mn crust				x		EMP	

SO208 DR91 **Description of Location and Structure: 2nm NNW of DR90; E-W striking trough, S-facing slope beneath small cone**	
Dredge on bottom	UTC 20/08/10 12:21hrs, lat 00°55,20'N, long 89°29,15'W, depth 2214m
Dredge off bottom	UTC 20/08/10 13:35hrs, lat 00°55,36'N, long 89°28,89'W, depth 2115m
total volume:	4 rocks
Comments:	basaltic lava fragments, poss 2 lithologies

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR91-1	1. Rock Type: massive basaltic lava with diffuse feldspar-clusters and glassy crust 2. Size: 17x14x10 3. Shape / Angularity: angular 4. Color of cut surface: wet: dark grey 5. Texture / Vesicularity: microporphyric, vesicles 7%, 1% filled with yellowish clayey substance 6. Phenocrysts: fsp: <1mm, fresh, snowflake-like clusters, 5% and submm fsp needles 10% 7. Matrix: dense, microcrystalline 9. Encrustations: Mn crust 1mm 10. Comment: glass crust 5mm, mainly fresh	x	x		x		EMP	
SO208 DR91-2	1. Rock Type: basaltic lava 2. Size: 9x7x4 10. Comment: similar to #1 but without glass	x						
SO208 DR91-3	1. Rock Type: massive basaltic lava, aphanitic 2. Size: 11x8x8 3. Shape / Angularity: angular 4. Color of cut surface: wet: dark grey 5. Texture / Vesicularity: massive, vesicles 10%, mainly empty 6. Phenocrysts: fsp: needle-like, <1mm, 10% 7. Matrix: dense, cryptocrystalline 9. Encrustations: Mn crust 1-5mm 10. Comment: fresh rock, good for further analysis	x	x					

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR91-4	1. Rock Type: basaltic lava 2. Size: 17x10x6 10. Comment: similar to #3							

SO208 DR92 **Description of Location and Structure: N of CNS; 5nm N of DR91, E-W striking ridge, N-facing slope**	
Dredge on bottom	UTC 20/08/10 15:39hrs, lat 00°57,63'N, long 89°28,92'W, depth 2373m
Dredge off bottom	UTC 20/08/10 16:51hrs, lat 00°57,52'N, long 89°28,79'W, depth 2325m
total volume:	9 rocks
Comments:	fairly coarse grained crystalline basaltic lava fragments

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR92-1	1. Rock Type: fine crystalline basaltic rock 2. Size: 15x12x11 3. Shape / Angularity: angular 4. Color of cut surface: medium grey where fresh 5. Texture / Vesicularity: massive, microvesicular, vesicles 3-7% 6. Phenocrysts: fsp: tabular and needles, fresh, up to 20%, submm; pyx (?): submm, 10%, appear fresh 7. Matrix: dense 8. Secondary Minerals: 5-10mm alteration halo with FeOH min. on fsp and mafic minerals 9. Encrustations: Mn crust <2mm 10. Comment: poss a sub-volcanic rock or a piece of a very thick lava flow	x	x					
SO208 DR92-2	1. Rock Type: basaltic rock 2. Size: 13x12x11 10. Comment: similar to #1	x						
SO208 DR92-3	1. Rock Type: basaltic rock 2. Size: 14x5x5 3. Shape / Angularity: angular 4. Color of cut surface: medium grey where fresh, altered zones brownish and greenish 5. Texture / Vesicularity: massive, microvesicular, vesicles 5% 6. Phenocrysts: fsp: needles, up to 2mm, fresh, 5%; fsp: tabular, clusters up to 1mm, fresh to slightly altered, 10-15%; pyx: needles, <1mm, 3-5% 7. Matrix: dense, crystalline 8. Secondary Minerals: FeOH-min along alteration halos of 10mm thickness, halos along rims and cracks 9. Encrustations: Mn crust 10. Comment: sub-volcanic basaltic rock or very thick lava flow, similar to #1 but coarser crystalline	x	x					
SO208 DR92-4	1. Rock Type: basaltic rock 2. Size: 13x10x6 10. Comment: similar to #3							
SO208 DR92-5	1. Rock Type: basaltic rock 2. Size: 8x7x3 3. Shape / Angularity: angular 4. Color of cut surface: dark grey 5. Texture / Vesicularity: massive, vesicles larger than in previous samples of this dredge, 7-10% 6. Phenocrysts: fsp: needles, up to 1mm, 2-3%; fsp: tabular, forming clusters up to 1mm in size, 2%, appear mainly fresh 7. Matrix: dense, microcrystalline 8. Secondary Minerals: along 2.5mm alteration halo FeOH-coating on fsp 9. Encrustations: Mn crust 1mm 10. Comment: fairly fresh rock	x	x					
SO208 DR92-6	1. Rock Type: basaltic rock 2. Size: 7x5x3 10. Comment: similar to #5							

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR92-7	1. Rock Type: basaltic rock 2. Size: 9x8x4 6. Phenocrysts: fsp similar to #5, Ol cluster, 2mm, 1% 10. Comment: similar to #5 and #6 but finer crystalline							

SO208 MUC93 **Description of Location and Structure: 9nm N of ridge axis, top area of an abyssal high**	
MUC on bottom	UTC 20/08/10 18:48hrs, lat 00°58,41'N, long 89°28,92'W, depth 2291m
MUC off bottom	UTC 20/08/10 18:50hrs, lat 00°58,41'N, long 89°28,92'W, depth 2296m
total volume:	12 of 12
Comments:	sediment

SO208 DR94 **Description of Location and Structure: smt cluster N of CNS; 5nm NNW of MUC93, irregular shaped smt, NW-facing slope**	
Dredge on bottom	UTC 20/08/10 21:04hrs, lat 01°02,30'N, long 89°31,84'W, depth 2295m
Dredge off bottom	UTC 20/08/10 21:50hrs, lat 01°02,12'N, long 89°31,50'W, depth 2203m
total volume:	empty
Comments:	

SO208 DR95 **Description of Location and Structure: ridge structure n of CNS, sharp N-facing slope of broad E-W striking horst structure, 4nm NE of DR94**	
Dredge on bottom	UTC 21/08/10 00:03hrs, lat 01°03,30'N, long 89°28,12'W, depth 2404m
Dredge off bottom	UTC 21/08/10 00:54hrs, lat 01°03,01'N, long 89°27,99'W, depth 2265m
total volume:	empty
Comments:	

SO208 DR96 **Description of Location and Structure: ridge structure N of CNS; same ridge as DR95, N-facing slope, NW of DR95**	
Dredge on bottom	UTC 21/08/10 03:02hrs, lat 01°03,55'N, long 89°30,36'W, depth 2378m
Dredge off bottom	UTC 21/08/10 03:45hrs, lat 01°03,28'N, long 89°30,20'W, depth 2280m
total volume:	two pillows
Comments:	pillow and pillow fragment

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR96-1	1. Rock Type: pillow fragment, medium altered 2. Size: 31x20x13 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: light grey, tan, dark grey 5. Texture / Vesicularity: aphyric, vesicles 5%, unfilled 6. Phenocrysts: fsp: needle like, submm, fresh 7. Matrix: microcrystalline 8. Secondary Minerals: FeOH, alteration halo (5mm) along cracks and margin 9. Encrustations: Mn crust <5mm 10. Comment: Mn lining in vesicles, FeSx lining in vesicles	x	x					no picture
SO208 DR96-2	1. Rock Type: pillow fragment, medium - very altered 2. Size: 17x15x7 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: light grey, tan 5. Texture / Vesicularity: aphyric, vesicles 7%, partly filled, especially along margins, with FeOH 6. Phenocrysts: fsp: fresh, submm-mm, platty, needle-like 7. Matrix: cryptocrystalline 8. Secondary Minerals: FeOH in vesicles and cracks 9. Encrustations: Mn crust 5mm 10. Comment: similar to #1	x	x					no picture

SO208 DR97 **Description of Location and Structure: ridge 2nm N of DR96, E-W striking trough, N-facing slope**	
Dredge on bottom	UTC 21/08/10 06:08hrs, lat 01°05,89'N, long 89°30,05'W, depth 2314m
Dredge off bottom	UTC 21/08/10 07:05hrs, lat 01°05,55'N, long 89°30,00'W, depth 2230m
total volume:	nearly empty
Comments:	sediment and Mn crust

Appendix IIb (Rock Description Leg 2)

SO208 DR98
Description of Location and Structure: northernmost location of profile II; N-facing slope of E-W striking ridge

Dredge on bottom	UTC 21/08/10 09:42hrs, lat 01°15,43'N, long 89°30,08'W, depth 2263m
Dredge off bottom	UTC 21/08/10 10:19hrs, lat 01°15,20'N, long 89°29,96'W, depth 2165m
total volume:	few rocks
Comments:	1xpillow and Mn crust

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR98-1	1. Rock Type: pillow with Mn encrusted glassy margin, still some fresh glass preserved, medium altered to fresh 2. Size: 23x15x15 3. Shape / Angularity: pillow shape, rounded 4. Color of cut surface: freh broken surface light grey when dry 5. Texture / Vesicularity: aphyric, 2-4%, vesicles 0,5mm, some filled with Fe-OH, some lined with Mn and smectite 9. Encrustations: Mn crust 5-10mm on glassy margin 10. Comment: best sample in dredge, glass may be still okay for spot analysis, bulk rock also ok for analysis	x			x		EMP	
SO208 DR98-2	1. Rock Type: pillow fragment, medium altered but no alteration halo has developed so far 2. Size: 15x13x6 3. Shape / Angularity: angular 4. Color of cut surface: fresh broken surface light grey when dry 5. Texture / Vesicularity: aphyric, slightly vesicular 2-4%, 0,3-0,5mm, mostly open, some filled with FeOH 7. Matrix: fresh 9. Encrustations: Mn coating 10. Comment: rock has only been cut to confirm similarities with #1							
SO208 DR98-3	1. Rock Type: pillow fragment with altered glassy margin 2. Size: 17x8x8 10. Comment: similar to #1, sampled because of glassy margin may still contain fresh glass, serves as backup sample							

SO208 DR99
Description of Location and Structure: 1nm N of active spreading ridge of CNS; prob in the off set zone of the ridge axis

Dredge on bottom	UTC 21/08/10 17:23hrs, lat 00°47,37'N, long 89°14,42'W, depth 1730m
Dredge off bottom	UTC 21/08/10 17:50hrs, lat 00°47,37'N, long 89°14,19'W, depth 1734m
total volume:	2 small rocks
Comments:	pillow fragments with glassy crust

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR99-1	1. Rock Type: basaltic rock 2. Size: 10x7x6 3. Shape / Angularity: angular 4. Color of cut surface: wet: dark grey 5. Texture / Vesicularity: massive, vesicles 5-7%, 1mm, empty 6. Phenocrysts: fsp: 3-5%, fresh, clusters up to 2mm 7. Matrix: dense, finecrystalline 8. Secondary Minerals: 9. Encrustations: glassy crust, fresh, 10mm 10. Comment: pillow fragment, rock brittel -> no GC block was possible	x			x		EMP	
SO208 DR99-2	1. Rock Type: basaltic rock 2. Size: 9x8x7 10. Comment: similar to #1	x	x		x		EMP	

Appendix IIb (Rock Description Leg 2)

SO208 DR100
Description of Location and Structure: directly on CNS, age "0", 1nm south of DR99; subtle graben structure, dredging along floor

Dredge on bottom	UTC 21/08/10 19:16hrs, lat 00°47,13'N, long 89°14,52'W, depth 1715m
Dredge off bottom	UTC 21/08/10 20:10hrs, lat 00°47,06'N, long 89°14,14'W, depth 1720m
total volume:	several rocks
Comments:	hydrothermal deposits, altered basaltic rock (?)

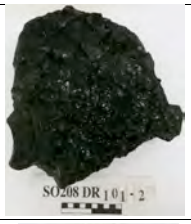
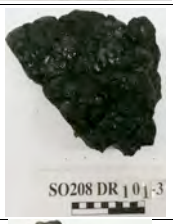
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR100-1	1. Rock Type: hydrothermal deposit 2. Size: 14x13x10 10. Comment: material (prob lava) that has been hydrothermal "altered" under formation of FeS, Mn, poss, galena, dolomite, bornite							
SO208 DR100-2	1. Rock Type: hydrothermal deposit 2. Size: 27x18x16 10. Comment: see #1							
SO208 DR100-3	2. Rock Type: hydrothermal deposit 2. Size: 21x16x15 10. Comment: see #1							
SO208 DR100-4	3. Rock Type: hydrothermal deposit 2. Size: 18x13x10 10. Comment: see #1							
SO208 DR100-5	4. Rock Type: hydrothermal deposit 2. Size: 19x14x12 10. Comment: see #1							
SO208 DR100-6	5. Rock Type: hydrothermal deposit 2. Size: 6x6x5 10. Comment: see #1							
SO208 DR100-7	6. Rock Type: hydrothermal deposit 2. Size: 9x8x6 10. Comment: see #1							
SO208 DR100-8	7. Rock Type: hydrothermal deposit 2. Size: 8x7x6 10. Comment: see #1							

Appendix IIb (Rock Description Leg 2)

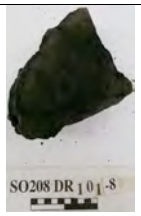
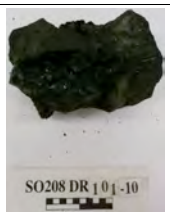
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR100-9	8. Rock Type: hydrothermal deposit 2. Size: 11x8x5 10. Comment: see #1							

SO208 DR101
Description of Location and Structure: CNS E of SO158 DR25; spreading axis from very small E-W striking rift valley, axis then jumps south and turns into ridge type axis further W

Dredge on bottom	UTC 22/08/10 04:09hrs, lat 00°48,48'N, long 89°04,68'W, depth 1770m
Dredge off bottom	UTC 22/08/10 05:05hrs, lat 00°48,24'N, long 89°04,41'W, depth 1762m
total volume:	2/3 full
Comments:	pillows, pillow fragmetns, sheet lava

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR101-1	1. Rock Type: sheet lava with thick glass 2. Size: 32x12x12 3. Shape / Angularity: platty, fresh broken 10. Comment: see sample #2 for more details				x		EMP	
SO208 DR101-2	1. Rock Type: sheet lava with thick glass 2. Size: 27x23x10 3. Shape / Angularity: platty, freshly broken 4. Color of cut surface: dry: dark grey to black 5. Texture / Vesicularity: aphyric, vesicles and degassing pipes 10-15%, 1-12mm, 9. Encrustations: glass crust 10-20mm 10. Comment: sheet lava are the most abundant rock type of the dredge, very fresh and lots of fresh glass, could be the youngest unit	x	x		x		EMP	
SO208 DR101-3	1. Rock Type: sheet lava, thick glass 2. Size: 21x14x9 9. Encrustations: glass crust 20mm 10. Comment: similar to #1 and #2				x		EMP	
SO208 DR101-4	1. Rock Type: pillow lava with glassy margin 2. Size: 26x25x13 3. Shape / Angularity: subangular-rounded top 4. Color of cut surface: grey when dry 5. Texture / Vesicularity: aphyric, vesicles 7%, near surface filled with sediment and FeOH, submm-mm 7. Matrix: dense 8. Secondary Minerals: FeOH 9. Encrustations: Mn coating 10. Comment: all pillows appear more altered with less glass than sheet flow lava -> could be an older unit	x	x		x		EMP	
SO208 DR101-5	1. Rock Type: pillow lava with glassy margin 2. Size: 18x18x16 3. Shape / Angularity: rounded 10. Comment: see for details -4 and -6				x		EMP	
SO208 DR101-6	1. Rock Type: pillow lava with glassy margin, fresh 2. Size: 29x20x15 3. Shape / Angularity: pillow rounded 4. Color of cut surface: dry: medium grey 5. Texture / Vesicularity: aphyric, few larger vesicles or accumulates of small vesicles, <2%, 2-3mm 7. Matrix: fsp-needles in gm, 0,5-1mm long, <0,1mm thick 10. Comment: good amount of fresh glass	x	x		x		EMP	

Appendix IIb (Rock Description Leg 2)

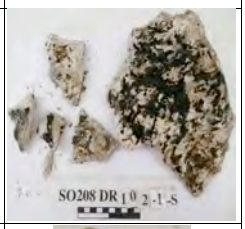
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR101-7	1. Rock Type: pillow lava , outer side slightly altered, probably some pillow unit 10. Comment: for further details see #4 & #6, check glass for similarities with previous sample				x		EMP	
SO208 DR101-8	1. Rock Type: pillow lava, with thick glassy margin 2. Size: 16x13x11 10. Comment: for further details see #4 & #6, similar to prev pillows of this dredge						EMP	
SO208 DR101-9	1. Rock Type: pillow lava, thin glassy margin 10. Comment: little fresh glass, similar to #4 and #6						EMP	
SO208 DR101-10	1. Rock Type: sheet flow with glass 2. Size: 21x13x12 10. Comment: taken as back up				x		EMP	
SO208 DR101-11	1. Rock Type: sheet flow with glass 2. Size: 19x11x7 10. Comment: taken as back up				x		EMP	
SO208 DR101-12	1. Rock Type: sheet flow with glass 2. Size: 18x15x9 10. Comment: taken as back up				x		EMP	
SO208 DR101-13	1. Rock Type: pillow fragment with glass 2. Size: 19x15x11 10. Comment: taken as back up				x		EMP	
SO208 DR101-14	1. Rock Type: larger pillow, glass margin very little preserved, fresh 2. Size: 36x23x18 3. Shape / Angularity: angular, roundend top 4. Color of cut surface: dry: grey 5. Texture / Vesicularity: aphyric, vesicles 10%, mostly unfilled, some with FeSx and Calcite 6. Phenocrysts: Ol: <1%, 0,5mm, 7. Matrix: dense 8. Secondary Minerals: calcite, FeOH, FeSx 10. Comment: taken to check whether bulk chem corresponds with glass from other pillows	x					EMP	no picture
SO208 DR101-15-X	1. Rock Type: sheet lava 2. Size: 13x8x6 10. Comment:						archive	no picture
SO208 DR101-16-X	2. Rock Type: sheet lava 2. Size: 11x7x7 10. Comment:						archive	no picture

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR101-17-X	3. Rock Type: sheet lava 2. Size: 17x9x9 10. Comment:						archive	no picture
SO208 DR101-18-X	4. Rock Type: sheet lava 2. Size: 8x8x7 10. Comment:						archive	no picture
SO208 DR101-19-X	5. Rock Type: sheet lava 2. Size: 14x12x8 10. Comment:						archive	no picture
SO208 DR101-20-X	6. Rock Type: pillow fragment 2. Size: 13x10x7 10. Comment:						archive	no picture

SO208 DR102
Description of Location and Structure: N of Eastern CNS, northernmost end of profile 4; oval shaped smt within E-W striking trough, surrounded by other small cones

Dredge on bottom	UTC 22/08/10 12:10hrs, lat 01°35,71'N, long 89°05,27'W, depth 2513m
Dredge off bottom	UTC 22/08/10 13:15hrs, lat 01°35,37'N, long 89°05,02'W, depth 2322m
total volume:	2 rocks
Comments:	sediment

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR102-1	1. Rock Type: calcareous semi-soft sediment 2. Size: 28x24x6 3. Shape / Angularity: slab 4. Color of cut surface: whitish-cream and grey 5. Texture / Vesicularity: unbedded 9. Encrustations: Mn crust 1mm 10. Comment: sed consits of forams, bioturbated "worm burrows" filled with grey material							
SO208 DR102-2	1. Rock Type: calcareous semi-soft sediment 2. Size: 12x12x4 10. Comment: similar to #1							

SO208 DR103
Description of Location and Structure: smt 86km N of Eastern CNS, 0.75nm S of DR102, S-W facing slope

Dredge on bottom	UTC 22/08/10 15:17hrs, lat 01°35,01'N, long 89°05,47'W, depth 2495m
Dredge off bottom	UTC 22/08/10 16:15hrs, lat 01°35,34'N, long 89°05,16'W, depth 2314m
total volume:	empty
Comments:	

SO208 DR104
Description of Location and Structure: 85km N of Eastern CNS; E-W-striking ridge, 2.5km SE of DR103, N-facing slope with a small elevation / smt on top

Dredge on bottom	UTC 22/08/10 18:13hrs, lat 01°34,16'N, long 89°04,58'W, depth 2537m
Dredge off bottom	UTC 22/08/10 19:05hrs, lat 01°33,69'N, long 89°04,53'W, depth 2354m
total volume:	very few rocks
Comments:	Mn crusts and similar secondary mineralisations

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR104-1	1. Rock Type: brecczia, highly altered 2. Size: 19x17x12 3. Shape / Angularity: subangular-irregular shape 4. Color of cut surface: dark brown, yellowish / grey / black 5. Texture / Vesicularity: porphyric, vesicles 9. Encrustations: Mn 10. Comment: very altered, prob. volcaniclastic material, chunks of volcanic glass (highly altered), and several alteration products, Mn along cracks and corn grains							
SO208 DR104-2	1. Rock Type: brecczia, highly altered 2. Size: 12x8x7 10. Comment: similar to #1	x						

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR104-3	1. Rock Type: brecczia, highly altered 2. Size: 11x8x5 10. Comment: similar to #1							
SO208 DR104-4	1. Rock Type: brecczia, highly altered 2. Size: 8x7x4 10. Comment: similar to #1							

SO208 DR105 **Description of Location and Structure: cluster of smt; 56km N of Eastern CNS, irregular shape of smt, NW-facing slope**	
Dredge on bottom	UTC 22/08/10 23:36hrs, lat 01°18,88'N, long 89°09,14'W, depth 2290m
Dredge off bottom	UTC 23/08/10 00:47hrs, lat 01°18,47'N, long 89°09,88'W, depth 2188m
total volume:	several rocks
Comments:	pillows and pillow fragments, some with glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR105-1	1. Rock Type: pillow fragment, medium altered 2. Size: 13x13x10 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dry: light grey 5. Texture / Vesicularity: aphyric, vesicles <1%, unfilled 6. Phenocrysts: fsp+pyx: fresh, <1%, submm-mm, blocky/platty 7. Matrix: microcrystalline 8. Secondary Minerals: alteration halo along margin 9. Encrustations: Mn crust 3mm 10. Comment: pillow fragment with glass on top, but thick Mn crust above, glass was sampled for LA-ICPMS and EMA	x	x		x		EMP	
SO208 DR105-2	1. Rock Type: pillow fragment, medium altered 2. Size: 16x12x10 3. Shape / Angularity: subangular 4. Color of cut surface: light grey with alteration halo along margin 5. Texture / Vesicularity: aphyric, vesicles <1% 6. Phenocrysts: fsp: platty, <1%, submm-mm; pyx: blocky, fresh, <1%, submm-mm 7. Matrix: microcrystalline 9. Encrustations: Mn coating 10. Comment: similar to #1	x	x		x		EMP	
SO208 DR105-3	1. Rock Type: pillow fragment, medium altered 2. Size: 15x10x9 3. Shape / Angularity: subangular 4. Color of cut surface: dark grey 5. Texture / Vesicularity: aphyric, vesicles <1% 6. Phenocrysts: fsp: platty, fresh, 1%, submm-mm; pyx: blocky, 1%, submm-mm, fresh; Ol: altered, <1%, submm 7. Matrix: microcrystalline, cryptocrystalline along chilled margin 9. Encrustations: Mn coating 10. Comment: similar to #1 but contains Ol				x		EMP	
SO208 DR105-4	1. Rock Type: pillow fragment 2. Size: 15x13x11 5. Texture / Vesicularity: similar to #1 but vesicles partly filled with FeOH 6. Phenocrysts: similar to 11 but fsp: <3%, up to 5mm 10. Comment: similar to #1				x		EMP	
SO208 DR105-5	1. Rock Type: pillow fragment, medium altered 2. Size: 22x17x17 6. Phenocrysts: similar to #1 but fsp: up to 5mm 8. Secondary Minerals: vesicles filled with FeOH especially along margin within alteration halo, alteration halo up to 20mm thick 10. Comment: similar to #1	x	x					

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR105-6	1. Rock Type: pillow fragment 2. Size: 26x21x18 10. Comment: similar to #5	x	x					
SO208 DR105-7	1. Rock Type: pillow fragment, medium altered 2. Size: 22x16x10 8. Secondary Minerals: Mn in cracks 9. Encrustations: chilled margin, Mn crust 5mm 10. Comment: similar to #5							
SO208 DR105-8	1. Rock Type: pillow fragment, medium altered 2. Size: 19x15x14 3. Shape / Angularity: subrounded 4. Color of cut surface: light grey / dark grey 5. Texture / Vesicularity: aphyric, vesicles <3%, partly filled with FeOH along margin 10. Comment: similar to #5 but size and abundance of vesicles increase towards margin	x	x					
SO208 DR105-9	1. Rock Type: pillow fragment, medium altered 2. Size: 17x10x9 10. Comment: similar to #5							

SO208 DR106
Description of Location and Structure: ridge, 50km N of Eastern CNS; E-W striking ridge, N facing slope

Dredge on bottom	UTC 23/08/10 03:08hrs, lat 01°15,30'N, long 89°13,39'W, depth 2448m
Dredge off bottom	UTC 23/08/10 04:11hrs, lat 01°15,04'N, long 89°13,23'W, depth 2200m
total volume:	few rocks
Comments:	pillow fragment Mn encrusted, Mn crusts

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR106-1	1. Rock Type: pillow fragment, basalt, medium-very altered 2. Size: 17x16x12 3. Shape / Angularity: angular 4. Color of cut surface: dry: dark grey (interior), light grey (alteration halo) tan 5. Texture / Vesicularity: aphyric, vesicles 7%, partly filled along margin and cracks 6. Phenocrysts: fsp: platty, <1%, submm, fresh-altered 7. Matrix: microcrystalline 8. Secondary Minerals: Mn lining in vesicles, FeOH in vesicles 9. Encrustations: Mn crust 3mm 10. Comment: biggest piece of four samples, alteration halo along margin and cracks up to 20mm, material in interior fairly fresh	x	x					
SO208 DR106-2	1. Rock Type: pillow fragment, medium - very altered 2. Size: 12x11x6 3. Shape / Angularity: angular 4. Color of cut surface: dry: dark grey (interior), light grey (alteration halo), tan 5. Texture / Vesicularity: aphyric, vesicles 10%, partly filled along margin and cracks 6. Phenocrysts: fsp: fresh altered, 1%, submm; pyx: fresh, 1%, submm 7. Matrix: microcrystalline 8. Secondary Minerals: Mn lining in vesicles, FeOH in vesicles along margin and cracks 9. Encrustations: Mn coating 10. Comment: very similar to #1 but differs in vesicularity and abundance of pyx	x	x					
SO208 DR106-3	2. Rock Type: pillow fragment, medium - very altered 2. Size: 11x10x9 10. Comment: very similar to #1							

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR106-4	3. Rock Type:pillow fragment, medium - very altered 2. Size: 10x9x9 10. Comment: similar to #1							

SO208 DR107
Description of Location and Structure: N of CNS, profile 4 middle part; E-W striking plateau structure with small cones in central part, soutern part cut by fault, track along SW flank

Dredge on bottom	UTC 23/08/10 08:39hrs, lat 01°04,59'N, long 89°06,20'W, depth 2320m
Dredge off bottom	UTC 23/08/10 09:52hrs, lat 01°04,88'N, long 89°04,74'W, depth 2163m
total volume:	1/2 full
Comments:	large (very nice) pillow blocking mouth of dredge, pillow fragments with greenish alteration spots

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR107-1	1. Rock Type: pillow 2. Size: 47x46x45 10. Comment: glass was collected otherwise not further worked with				x		EMP	
SO208 DR107-2	1. Rock Type: basaltic aphanitic rock 2. Size: 15x15x12 3. Shape / Angularity: 4. Color of cut surface: medium grey 5. Texture / Vesicularity: massive, vesicles 2-3% 6. Phenocrysts: fsp: submm, 20%, fresh 7. Matrix: dense 8. Secondary Minerals: 9. Encrustations: hydrothermal coatings, <1mm, in orange, yellow, green, cream 10. Comment: appears fresh	x	x		x		EMP	
SO208 DR107-3	1. Rock Type: pillow fragment 2. Size: 20x15x12 10. Comment: glass was collected				x		EMP	
SO208 DR107-4	1. Rock Type: basaltic aphanitic rock 2. Size: 23x20x15 6. Phenocrysts: fsp: submm, 20%, fsp clusters up to 1mm size, 1-2%, fresh 10. Comment: similar to #2	x	x					
SO208 DR107-5	1. Rock Type: basaltic aphanitic rock 2. Size: 20x10x8 6. Phenocrysts: similar to #4, additional Ol: <1%, 1mm, fresh 10. Comment: similar to #2							
SO208 DR107-6	1. Rock Type: rock fragment with hydrothermal mineralisation 2. Size: 21x11x10 10. Comment: alloys (outside): green/yellow/cream and silvery							

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR107-7	1. Rock Type: pillow fragment with strong hydrothermal mineralisation 2. Size: 11x11x6 10. Comment: color gradation, brown-yellow-black-blueish-green							
SO208 DR107-8	1. Rock Type: Mn crust with mineralisation 2. Size: 20x13x7 10. Comment: wavy-layered Mn with silvery lead-like looking fillings in cracks							
SO208 DR107-9	1. Rock Type: Mn crust with mineralisations 2. Size: 9x7x4 10. Comment: similar to #8							

SO208 DR108
Description of Location and Structure: 4nm SSW of DR107; E-W striking fault, S-facing slope

Dredge on bottom	UTC 23/08/10 12:10hrs, lat 01°00,43'N, long 89°07,44'W, depth 2400m
Dredge off bottom	UTC 23/08/10 13:13hrs, lat 01°00,68'N, long 89°07,12'W, depth 2248m
total volume:	several rocks
Comments:	basaltic pillow fragments, some with glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR108-1	1. Rock Type: aphanitic basaltic pillow lava fragment with glassy crust 2. Size: 33x23x23 3. Shape / Angularity: angular broken edges, smooth outer surface 4. Color of cut surface: dark to medium grey 5. Texture / Vesicularity: massive, 5-7% vesicles, microvesicles, mostly empty 6. Phenocrysts: fsp: submm, appears fresh, 30% 7. Matrix: dense, microcrystalline 8. Secondary Minerals: alteration halo along surface and cracks of 10mm width with some FeOH mineralisations, mainly on fsp and vesicles 9. Encrustations: Mn crust 1-2mm 10. Comment: glass is not very fresh, 5mm, otherwise good fresh rock	x	x		x		EMP	
SO208 DR108-2	1. Rock Type: aphanitic basaltic pillow fragment without glassy crust 2. Size: 20x20x15 10. Comment: similar to #1	x	x					
SO208 DR108-3	1. Rock Type: aphanitic basaltic pillow lava fragment 2. Size: 29x20x15 10. Comment: similar to #1 but withouth glassy crust							
SO208 DR108-4	1. Rock Type: sheet lava with glass and hyaloclastite 2. Size: 15x11x11 3. Shape / Angularity: irregular -angular 4. Color of cut surface: lava black to dark grey 5. Texture / Vesicularity: massive, vesicles 2%, microvesicles 6. Phenocrysts: fsp: 5-20%, submm, varying with distance from glassy crust 7. Matrix: dense-glassy to cryptocrystalline 8. Secondary Minerals: FeOH along cracks 9. Encrustations: Mn crust 1-2mm 10. Comment: in situ hyaloclastite, clasts up to 20mm, angular, little matrix	x			x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR108-5	1. Rock Type: lava fragment with glass 2. Size: 15x12x9 10. Comment:				x		EMP	
SO208 DR108-6	2. Rock Type: lava fragment with glass 2. Size: 12x11x9 10. Comment:				x		EMP	
SO208 DR108-7	3. Rock Type: lava fragment with glass 2. Size: 10x8x4 10. Comment:				x		EMP	
SO208 DR108-8	4. Rock Type: lava fragment with glass 2. Size: 13x10x8 10. Comment:				x		EMP	
SO208 DR108-9-VC	1. Rock Type: hyaloclastite as on #4 2. Size: 9x6x3 3. Shape / Angularity: iregular-angular shaped 10. Comment: clasts: <1-10mm, angular, glassy, closely packed, poorly sorted							
SO208 DR108-10-X	1. Rock Type: aphanitic basaltic pillow lava fragment 2. Size: 18x13x11 10. Comment: similar to #1 but without glassy crust						archive	
SO208 DR108-11-X	2. Rock Type: aphanitic basaltic pillow lava fragment 2. Size: 13x11x8 10. Comment: similar to #1 but without glassy crust						archive	

SO208 DR109 **Description of Location and Structure: ridge, 4nm S of DR108, N-facing slope, 18km N of Eastern CNS**	
Dredge on bottom	UTC 23/08/10 15:34hrs, lat 00°57,48'N, long 89°10,10'W, depth 2439m
Dredge off bottom	UTC 23/08/10 16:27hrs, lat 00°57,18'N, long 89°10,84'W, depth 2253m
total volume:	empty
Comments:	1 seastar

Appendix IIb (Rock Description Leg 2)

SO208 DR110
Description of Location and Structure: smt-cluster, N of Eastern CNS; irregular shaped edifice, 3.5nm SE of DR109, N facing flank up to highest peak

Dredge on bottom	UTC 23/08/10 18:54hrs, lat 00°55,24'N, long 89°06,74'W, depth 2232m
Dredge off bottom	UTC 23/08/10 19:57hrs, lat 00°54,74'N, long 89°06,70'W, depth 2020m
total volume:	few rocks
Comments:	pillows with fresh glass crusts

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR110-1	1. Rock Type: pillow, fairly fresh - slightly altered 2. Size: 25x19x17 3. Shape / Angularity: rounded 4. Color of cut surface: dark grey 5. Texture / Vesicularity: aphyric, vesicles <3% 6. Phenocrysts: fsp: submm, fresh, 1%; pyx (?): fresh, submm, <1% 7. Matrix: microcrystalline 8. Secondary Minerals: Mn in cracks and vesicles 9. Encrustations: Mn and glass crust 5mm 10. Comment: nice pillow with stratification of cooling process a) glassy crust b) cryptocrystalline margin (chilled margin) c) inceasing crystallization degree towards center	x	x		x		EMP	
SO208 DR110-2	1. Rock Type: pillow fragment, fresh -slightly altered 2. Size: 24x23x20 3. Shape / Angularity: rounded 4. Color of cut surface: light grey / tan 10. Comment: simiöar to #1 but vesicles partly filled with Fe-OH and stratification more clear	x	x		x		EMP	
SO208 DR110-3	1. Rock Type: pillow fragment, fairly fresh 2. Size: 12x9x9 4. Color of cut surface:dry: light grey 10. Comment: similar to #1, even more clear cooling gradation esp border chilled margin to crystallized zone very clear	x						
SO208 DR110-4	1. Rock Type: pillow fragment, fairly fresh 2. Size: 16x7x5 4. Color of cut surface: dry: light grey, tan 10. Comment: similar to #							

SO208 DR111
Description of Location and Structure: near main eastern CNS; N-facing slope of irregular shaped E-W trending elevation

Dredge on bottom	UTC 23/08/10 21:58hrs, lat 00°49,55'N, long 89°07,24'W, depth 1872m
Dredge off bottom	UTC 23/08/10 22:50hrs, lat 00°49,36'N, long 89°06,89'W, depth 1788m
total volume:	2 rocks
Comments:	sheet lava

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR111-1	1. Rock Type: sheet lava 2. Size: 9x8x6 3. Shape / Angularity: irregular shape 4. Color of cut surface: dark grey / black 5. Texture / Vesicularity: dense, glassy, amorph, vesicles 0% but large degassing pipes, partly filled with sediment 8. Secondary Minerals: sediment, c.c., ooze in vesicles, slightly altered glass (palagonite) 10. Comment: small piece of sheet lava with large degassing pipes				x		EMP	
SO208 DR111-2	1. Rock Type: sheet lava 2. Size: 10x7x6 10. Comment: similar to #1 but with less degassing pipes as #1				x		EMP	

Appendix IIb (Rock Description Leg 2)

SO208 DR112
Description of Location and Structure: S of Eastern CNS; irregular elevation with a flat topped hill, 4nm S of DR111, W-facing slope

Dredge on bottom	UTC 24/08/10 00:46hrs, lat 00°45,37'N, long 89°08,53'W, depth 2040m
Dredge off bottom	UTC 24/08/10 01:34hrs, lat 00°45,35'N, long 89°08,24'W, depth 1960m
total volume:	few rocks
Comments:	pillows and pillow fragments with glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR112-1	1. Rock Type: pillow 2. Size: 30x24x17 3. Shape / Angularity: round 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, vesicles 7% 6. Phenocrysts: fsp: 1%, fresh, platty, submm; Ol: 1-2%, fresh-altered, up to 3mm 7. Matrix: microcrystalline 8. Secondary Minerals: alteration products of Ol 9. Encrustations: glass crust 2mm 10. Comment: nice pillow with fresh glass and Ol	x	x		x		EMP	
SO208 DR112-2	1. Rock Type: pillow 2. Size: 20x12x11 10. Comment: similar to #1 but Ol is not abundant				x		EMP	
SO208 DR112-3	1. Rock Type: pillow fragment 2. Size: 9x8x8 10. Comment: similar to #1 but Ol is not abundant				x		EMP	
SO208 DR112-4	2. Rock Type: pillow fragment 2. Size: 9x8x5 10. Comment: similar to #1				x		EMP	
SO208 DR112-5	3. Rock Type: pillow fragment 2. Size: 12x8x7 10. Comment: similar to #1				x		EMP	

SO208 DR113
Description of Location and Structure: S of Eastern CNS; E-W striking step in seafloor topography, S-facing slope

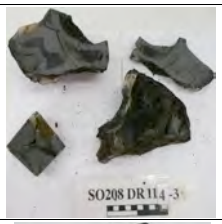
Dredge on bottom	UTC 24/08/10 04:12hrs, lat 00°39,11'N, long 89°10,90'W, depth 2446m
Dredge off bottom	UTC 24/08/10 01:01hrs, lat 00°39,33'N, long 89°10,63'W, depth 2295m
total volume:	empty
Comments:	

SO208 DR114
Description of Location and Structure: S of Eastern CNS; E-W striking scarp south of smt structure

Dredge on bottom	UTC 24/08/10 08:41hrs, lat 00°22,01'N, long 89°07,88'W, depth 2290m
Dredge off bottom	UTC 24/08/10 09:57hrs, lat 00°22,36'N, long 89°07,50'W, depth 2049m
total volume:	1/3 full
Comments:	one very large pillow, 50-70cm in diameter blocking dredge, pillows and pillow fragments, all with 10-20mm Mn crust and very little fresh glass

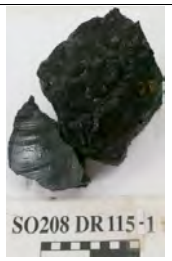
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR114-1	1. Rock Type: pillow, altered 2. Size: 30x22x20 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: grey 5. Texture / Vesicularity: aphyric, vesicles 7%, filled with Mn 6. Phenocrysts: Ol: <1%, 2mm 7. Matrix: dense with numerous fissures 9. Encrustations: Mn crust 7mm 10. Comment: glass was collected for EMA but might be to altered	x			x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR114-2	1. Rock Type: pillow 2. Size: 30x20x20 3. Shape / Angularity: rounded 4. Color of cut surface: no fresh surface 9. Encrustations: Mn crust 3mm 10. Comment: glass sampled for EMA but might be to altered				x		EMP	
SO208 DR114-3	1. Rock Type: huge pillow, very altered 2. Size: 50x38x30 3. Shape / Angularity: rounded 4. Color of cut surface: grey 5. Texture / Vesicularity: aphyric, vesicles 7%, filled with Mn 6. Phenocrysts: fsp: altered, <1%, submm 7. Matrix: dense with numerous fissures 9. Encrustations: Mn crust 5mm 10. Comment: very altered glass, no samples were taken, pillow with sediment core (about 100mm in diameter)	x	x					
SO208 DR114-4	1. Rock Type: pillow 2. Size: 14x13x12 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: grey-red areas 5. Texture / Vesicularity: similar to #1 6. Phenocrysts: fsp: altered, 1%, submm-mm 7. Matrix: dense matrix, few fissures 8. Secondary Minerals: FeOH 9. Encrustations: Mn crust 5mm 10. Comment:	x	x					
SO208 DR114-5	1. Rock Type: pillow 2. Size: 13x13x12 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: grey 6. Phenocrysts: fsp: <1%, altered, submm-mm; Ol: <1%, mm, fresh 8. Secondary Minerals: FeOH 9. Encrustations: Mn crust 2mm 10. Comment:	x						
SO208 DR114-6	1. Rock Type: pillow 2. Size: 11x10x9 3. Shape / Angularity: rounded-subangular 6. Phenocrysts: fsp: altered, 1%, mm; pyx: <1%, altered, mm 9. Encrustations: Mn crust 2mm 10. Comment: similar to #1	x						

SO208 DR115
Description of Location and Structure: S of Eastern CNS; irregular shaped smt on top of faulted block of DR114, NW-facing slope

Dredge on bottom	UTC 24/08/10 12:05hrs, lat 00°24,35'N, long 89°07,90'W, depth 2158m
Dredge off bottom	UTC 24/08/10 13:25hrs, lat 00°23,98'N, long 89°07,62'W, depth 1815m
total volume:	several rocks
Comments:	basaltic pillow fragments and Mn crust

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR115-1	1. Rock Type: basaltic Ol-phyric pillow fragment with glass 2. Size: 41x22x20 3. Shape / Angularity: angular broken edges, smooth outer surface 4. Color of cut surface: greyish to greenish-grey 5. Texture / Vesicularity: massive, vesicles 0-2% 6. Phenocrysts: Ol: up to 1mm, fresh to altered, 2-3%, often in clusters of 2mm size; fsp: submm, 20%, appears fresh 7. Matrix: dense, glassy to microcrystalline 8. Secondary Minerals: expansive alteration halos along cracks 85-10mm wide), were is impragnated with Fe-OH-minerals, diffuse transition of fresh rock 9. Encrustations: Mn crust 15mm 10. Comment: glass moderately altered and Mn encrusted; GC blocks difficult to cut into entirely fresh rock, devitrification of glass - concentric/radial spherulitic textures	x	x		x		EMP	
SO208 DR115-2	1. Rock Type: basaltic Ol-phyric pillow fragment 2. Size: 27x26x22 5. Texture / Vesicularity: almost no vesicles, less glass 6. Phenocrysts: Ol fresh 9. Encrustations: alteration halos more prominent (optically) with sharp transition to the freh rock 10. Comment: similar to #1 but with altered glass (but taken)	x	x		x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR115-3	1. Rock Type: basaltic Ol-phyric pillow fragment with glass on top and within 2. Size: 21x18x10 9. Encrustations: Mn crust 5mm 10. Comment: 6 cm curved lava resembling pillow, mostly cryptocrystalline with <10mm glassy rim				x		EMP	
SO208 DR115-4	1. Rock Type: basaltic Ol-phyric pillow fragment 2. Size: 26x20x20 10. Comment: similar to #1				x		EMP	
SO208 DR115-5	1. Rock Type: only glassy crust with Mn 2. Size: 12x11x4 10. Comment: similar to #1				x		EMP	
SO208 DR115-6-M	1. Rock Type: Mn crust 2. Size: 10x9x6 10. Comment: sediment encrusted with Mn							
SO208 DR115-7-M	1. Rock Type: Mn crust 2. Size: 10x9x6 10. Comment:sediment with Mn encrusted							

SO208 MUC116 **Description of Location and Structure: plain S of Eastern CNS**	
MUC on bottom	UTC 24/08/10 16:07hrs, lat 00°25,71'N, long 89°02,27'W, depth 2256m
MUC off bottom	UTC 24/08/10 16:09hrs, lat 00°25,71'N, long 89°02,26'W, depth 2252m
total volume:	12 of 12
Comments:	

SO208 DR117 **Description of Location and Structure: S of Eastern CNS; basin-like depression extending E-W, N-facing slope, 20km S of CNS**	
Dredge on bottom	UTC 24/08/10 19:00hrs, lat 00°37,18'N, long 89°01,56'W, depth 2488m
Dredge off bottom	UTC 24/08/10 20:10hrs, lat 00°36,62'N, long 89°01,39'W, depth 2306m
total volume:	several rocks
Comments:	mostly pillow fragment, some small sheet flows, little fresh glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR117-1	1. Rock Type: pillow fragment, med-very altered 2. Size: 27x20x14 3. Shape / Angularity: subangular - angular 4. Color of cut surface: dry: light grey (alteration halo), grey (interior) 5. Texture / Vesicularity: aphyric, vesicles 7% 6. Phenocrysts: pyx: fresh, blocky, <1%, submm-mm; fsp: <1%, needle-like, submm 7. Matrix: microcrystalline 8. Secondary Minerals: alteration halo along margin and cracks 5-10mm 9. Encrustations: Mn crust 2mm 10. Comment:	x	x					
SO208 DR117-2	1. Rock Type: pillow fragment, medium-very altered 2. Size: 23x15x12 3. Shape / Angularity: subangular - angular 4. Color of cut surface: dry: dark grey (interior), light grey (alteration halo) 5. Texture / Vesicularity: aphyric, vesicles 10%, fillen within alteration halo 6. Phenocrysts: pyx: fresh, blocky, 3%, submm, in vesicles (?) 7. Matrix: microcrystalline 8. Secondary Minerals: alteration halo, vesicles with Fe-OH-min 9. Encrustations: Mn coating 10. Comment:	x	x					

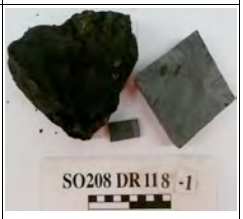
Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR117-3	1. Rock Type: pillow fragment 2. Size: 15x10x9 10. Comment: similar to #1 but some vesicles have some whitish lining; spheroide <1% (?)	x	x					
SO208 DR117-4	1. Rock Type: sheet lava, slightly altered 2. Size: 9x7x4 3. Shape / Angularity: platty, slab 4. Color of cut surface: dark grey, black 5. Texture / Vesicularity: amorph, glassy 9. Encrustations: glassy crust 3mm 10. Comment: piece of sheet lava, glass was sampled only for EMA				x		EMP	
SO208 DR117-5	1. Rock Type: sheet lava 2. Size: 8x6x3 10. Comment: similar to #4, glass only for EMA				x		EMP	
SO208 DR117-6	1. Rock Type: sheet lava 2. Size: 11x8x8 10. Comment: similar to #4	x						
SO208 DR117-7	1. Rock Type: sheet lava 2. Size: 7x7x6 10. Comment: similar to #4	x						
SO208 DR117-8	1. Rock Type: sheet lava 2. Size: 9x7x4 10. Comment: similar to #4, no glass was sampled							
SO208 DR117-9-X	1. Rock Type: pillow fragment 2. Size: 17x11x8 10. Comment: similar to #1 - #3						archive	
SO208 DR117-10-X	1. Rock Type: pillow fragment 2. Size: 15x14x13 10. Comment: similar to #1 - #3						archive	
SO208 DR117-12	1. Rock Type: Mn-crust and glass 10. Comment: sample was collected because of glass, not sure whether it will be analysed or not							

Appendix IIb (Rock Description Leg 2)

SO208 DR118
Description of Location and Structure: small elevation near ridge-edge, S of Eastern CNS, NW-facing flank, 11km S of CNS

Dredge on bottom	UTC 24/08/10 23:06hrs, lat 00°39,24'N, long 89°01,07'W, depth 2520m
Dredge off bottom	UTC 25/08/10 00:04hrs, lat 00°38,95'N, long 89°00,87'W, depth 2263m
total volume:	several rocks
Comments:	pillow fragments

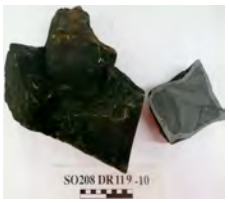
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR118-1	1. Rock Type: pillow fragment, medium-very altered 2. Size: 18x17x15 3. Shape / Angularity: subangular with rounded top 4. Color of cut surface: dry: light grey (alteration halo), dark grey (interior) 5. Texture / Vesicularity: aphyric, vesicles 5%, filled within alteration halo 6. Phenocrysts: pyx: blocky, 1-2%, fresh, submm; fsp: platty, 3%, fresh, submm 7. Matrix: microcrystalline 8. Secondary Minerals: Fe-OH min in vesicles 9. Encrustations: Mn coating 10. Comment: glass on top, but very altered	x	x		x		EMP	
SO208 DR118-2	1. Rock Type: pillow fragment 2. Size: 16x16x15 10. Comment: similar to #1	x	x					
SO208 DR118-3	1. Rock Type: pillow fragment 2. Size: 20x18x16 10. Comment: similar to #1 but may contain Ol (if so: <1%, presumably in alteration halo)	x	x					
SO208 DR118-4	1. Rock Type: pillow fragment-pillow top 2. Size: 23x15x11 3. Shape / Angularity: subrounded to subangular 4. Color of cut surface: dark grey/black (chilled margin), light grey (alteration halo), dark grey (interior) 5. Texture / Vesicularity: aphyric, vesicles 15% 6. Phenocrysts: Ol: very altered, mainly in alteration halo, 3%; fsp: submm, fresh, 1-2%; pyx: submm-mm, fresh, 3% 7. Matrix: microcrystalline 8. Secondary Minerals: Fe-OH in vesicles within alteration halo 9. Encrustations: thick Mn-crust with very altered glass 5-10mm 10. Comment: pillow top with altered Ol, cooling fractures and chilled margin	x	x				EMP	
SO208 DR118-5	1. Rock Type: volcanic, basalt plate 2. Size: 21x13x4 3. Shape / Angularity: platty 4. Color of cut surface: dark grey, light grey 5. Texture / Vesicularity: aphyric, vesicles 2% 7. Matrix: microcrystalline 8. Secondary Minerals: Fe-OH-mins. in vesicles within alteration halo 9. Encrustations: Mn coating 10. Comment: very flat platty basalt	x						

SO208 DR119
Description of Location and Structure: S of Eastern CNS, E-W striking scarp, S-facing slope

Dredge on bottom	UTC 25/08/10 06:44hrs, lat 00°39,32'N, long 88°23,83'W, depth 2264m
Dredge off bottom	UTC 25/08/10 07:44hrs, lat 00°39,69'N, long 88°23,56'W, depth 2112m
total volume:	full
Comments:	pillows and some glassy sheet lava samples

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR119-1	1. Rock Type: pillow 2. Size: 22x18x12 3. Shape / Angularity: subangular, rounded top 4. Color of cut surface: grey 5. Texture / Vesicularity: porphyric, vesicles 7%, submm-mm, Mn-lining 6. Phenocrysts: fsp: submm-mm, altered, 1%; Ol: <1%, altered, mm 7. Matrix: dense, cooling fissures, some parallel to cooling surface 8. Secondary Minerals: Fe-OH-mins. 9. Encrustations: Mn crust 1mm, altered glass crust 2mm 10. Comment:	x	x		x		EMP	
SO208 DR119-2	1. Rock Type: pillow 2. Size: 18x15x14 3. Shape / Angularity: subangular-angular 4. Color of cut surface: grey 5. Texture / Vesicularity: porphyric, vesicles 7% 6. Phenocrysts: fsp: submm-mm, 1%, altered 7. Matrix: dense, few fissures 8. Secondary Minerals: Mn in cracks 9. Encrustations: altered glass crust 3mm 10. Comment:	x	x		x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR119-3	1. Rock Type: pillow 2. Size: 14x10x8 3. Shape / Angularity: angular, rounded top 4. Color of cut surface: grey 5. Texture / Vesicularity: aphyric, vesicles 2%, <1mm, Mn lining 6. Phenocrysts: fsp: <1mm, altered, <1% 7. Matrix: dense 9. Encrustations: glass crust altered, 2mm 10. Comment:				x		EMP	
SO208 DR119-4	1. Rock Type: pillow 2. Size: 14x14x9 3. Shape / Angularity: subangular, rounded top 4. Color of cut surface: grey 8. Secondary Minerals: Fe-OH mins in vesicles near margin 10. Comment: similar to #3				x		EMP	
SO208 DR119-5	1. Rock Type: pillow 2. Size: 17x13x12 10. Comment: similar to #3 and #4				x		EMP	
SO208 DR119-6	1. Rock Type: pillow 2. Size: 21x15x12 10. Comment: similar to #3 and #4 but fsp not as altered and bigger				x		EMP	
SO208 DR119-7	1. Rock Type: volcanic breccia, nearly completely glass 2. Size: 10x8x6 3. Shape / Angularity: subangular 4. Color of cut surface: black 5. Texture / Vesicularity: aphyric 7. Matrix: dense, glassy 9. Encrustations: Mn crust 1mm 10. Comment: complete sample as glass sample				x		EMP	
SO208 DR119-8	1. Rock Type: pillow 2. Size: 15x10x8 10. Comment: top of pillow covered with glass fragments (breccia) otherwise similar to #3 and #4				x		EMP	
SO208 DR119-9	1. Rock Type: hyaloclastite 2. Size: 20x12x4 3. Shape / Angularity: slab, platty 4. Color of cut surface: grey 5. Texture / Vesicularity: massive 6. Phenocrysts: clasts glassy and cryptocrystalline 7. Matrix: fine altered calcareous (?) ooze 9. Encrustations: Mn crust 1-2mm 10. Comment: <1-15mm angular, non vesicular clusts	x						
SO208 DR119-10	1. Rock Type: basaltic lava 2. Size: 31x19x14 3. Shape / Angularity: angular 4. Color of cut surface: grey 5. Texture / Vesicularity: massive, aphyric, vesicles 5% 6. Phenocrysts: fsp: submm, needle, appear fresh, 10% 7. Matrix: microcrystalline 8. Secondary Minerals: alteration halos along cracks, 10mm in width 9. Encrustations: Mn crust 1-3mm 10. Comment: fresh good rock between alteration halos	x	x					

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR119-11	1. Rock Type: basaltic lava 2. Size: 34x17x12 10. Comment: similar to #10	x	x					
SO208 DR119-12	1. Rock Type: contured sheet lava with glassy crust 2. Size: 18x13x9 3. Shape / Angularity: irregular 4. Color of cut surface: black to grey 5. Texture / Vesicularity: minor flow banding, vesicles 2-7%, vary in size 6. Phenocrysts: fsp: submm, needles, 5% 7. Matrix: glassy to crytocrystalline 9. Encrustations: Mn crust 2-3mm 10. Comment: rock brittle, glass appears fresh							
SO208 DR119-13	1. Rock Type: sheet lava 2. Size: 9x9x6 10. Comment: similar to #12				x		EMP	
SO208 DR119-14	1. Rock Type: sheet lava 2. Size: 12x10x7 10. Comment: similar to #12				x		EMP	
SO208 DR119-15	1. Rock Type: sheet lava 2. Size: 7x6x4 10. Comment: similar to #12				x		EMP	
SO208 DR119-16	1. Rock Type: basalt fragment with angular glass breccia attached 2. Size: 7x6x5 10. Comment: glass sampled for EMA, check glass composition for similarities to other glass of dredge				x		EMP	
SO208 DR119-17	1. Rock Type: pillow fragment with thin glassy margin 2. Size: 13x10x9 10. Comment: glass sampled for EMA, similar to other pillos on this dredge				x		EMP	
SO208 DR119-18	1. Rock Type: pillow fragment with thin glass crust 2. Size: 17x17x11 4. Color of cut surface:dark grey with 20mm alteration halo 5. Texture / Vesicularity: aphyric, vesicles 5%, submm-mm 10. Comment: glass sampled for EMA				x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR119-19	1. Rock Type: pillow with glassy margin 2. Size: 18x13x10 6. Phenocrysts: cpx (?) 10. Comment: glass sampled for EMA, check glass for similarities to other samples				x		EMP	
SO208 DR119-20	1. Rock Type: pillow with thin glassy margin, whole rock appears slightly altered 2. Size: 20x11x10 10. Comment: similar to #1						EMP	
SO208 DR119-21-X	1. Rock Type: sheet flow breccia AND volcaniclastic breccia with several basalt clasts 10. Comment: sheet flow breccia: 9 small pieces, similar to #7, 50-150mm in diameter volcaniclastic breccia: 5 pieces, clast size 1-6mm, similar to #9, contains glass						archive	

SO208 DR120
Description of Location and Structure: N of CNS at former SO158 DR19 station; NW-facing slope of E-W striking plateau edge

Dredge on bottom	UTC 25/08/10 11:46hrs, lat 00°50,69'N, long 88°21,55'W, depth 2530m
Dredge off bottom	UTC 25/08/10 13:02hrs, lat 00°50,31'N, long 88°21,24'W, depth 2279m
total volume:	1/4 full
Comments:	pillows, some with moderately altered crust

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR120-1	1. Rock Type: aphanitic pillow with partly altered glassy crust 2. Size: 33x23x18 3. Shape / Angularity: angular broken edges, smooth outer surface 4. Color of cut surface: medium grey to black (glassy crust) 5. Texture / Vesicularity: massive, vesicles 5-7% 6. Phenocrysts: fsp: needles, submm, fresh, 20%, cluster/tabular crystals, up to 1mm, 1-2% 7. Matrix: glassy to microcrystalline 8. Secondary Minerals: alteration halos of 5-10mm width along cracks with minor Fe-OH mineralizations on fsp and vesicles fillings 9. Encrustations: Mn crust 1-5mm 10. Comment: glass crust altered, little fresh glass	x	x		x		EMP	
SO208 DR120-2	1. Rock Type: aphanitic pillow 2. Size: 23x23x17 5. Texture / Vesicularity: similar to #1 but, vesicles 5% 10. Comment: similar to #1	x	x		x		EMP	
SO208 DR120-3	1. Rock Type: aphanitic pillow 2. Size: 29x20x18 10. Comment: similar to #1	x	x		x		EMP	
SO208 DR120-4	1. Rock Type: aphanitic pillow 2. Size: 22x18x13 10. Comment: similar to #1				x		EMP	

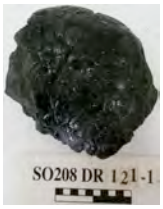
Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR120-5	1. Rock Type: aphanitic pillow 2. Size: 25x18x15 10. Comment: similar to #1				x		EMP	
SO208 DR120-6	1. Rock Type: aphanitic pillow 2. Size: 23x17x12 10. Comment: similar to #1				x		EMP	
SO208 DR120-7	1. Rock Type: aphanitic pillow 2. Size: 30x21x15 10. Comment: similar to #1				x		EMP	
SO208 DR120-8	1. Rock Type: aphanitic pillow 2. Size: 27x22x18 10. Comment: similar to #1							
SO208 DR120-9	1. Rock Type: aphanitic pillow 2. Size: 13x12x10 10. Comment: similar to #1							
SO208 DR120-10	1. Rock Type: aphanitic pillow 2. Size: 16x14x12 10. Comment: similar to #1				x		EMP	
SO208 DR120-11-X	1. Rock Type: aphanitic pillow 10. Comment: 4 small pieces with glassy crust, lithology similar to other samples							

Appendix IIb (Rock Description Leg 2)

SO208 DR121
Description of Location and Structure: Eastern CNS; directly along central E-W striking spreading ridge axis

Dredge on bottom	UTC 25/08/10 16:27hrs, lat 00°43,94'N, long 88°14,07'W, depth 1966m
Dredge off bottom	UTC 25/08/10 17:12hrs, lat 00°43,89'N, long 88°13,66'W, depth 1970m
total volume:	a few good rocks
Comments:	pillow fragments with fresh glass

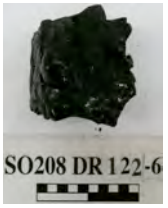
SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR121-1	1. Rock Type: aphyric pillow fragments 2. Size: 18x14x8 3. Shape / Angularity: angular broken edges, smoother surface 4. Color of cut surface: black (glass), dark grey (interior) 5. Texture / Vesicularity: massive, vesicles 2-3% 6. Phenocrysts: pyx: needles, submm, 5%, often in clusters; fsp: submm, radial aggregats (spherulite?), needles, clusters, fresh, 5-10% 7. Matrix: glassy to microcrystalline 8. Secondary Minerals: 9. Encrustations: glass crust 5mm 10. Comment: good fresh rock	x	x		x		EMP	
SO208 DR121-2	1. Rock Type: aphyric pillow fragments 2. Size: 17x13x10 10. Comment: similar to #1	x	x		x		EMP	
SO208 DR121-3	1. Rock Type: aphyric pillow fragments 2. Size: 10x8x7 10. Comment: similar to #1				x		EMP	
SO208 DR121-4	1. Rock Type: aphyric pillow fragments 2. Size: 12x10x8 10. Comment: similar to #1				x		EMP	
SO208 DR121-5-X	1. Rock Type: aphyric pillow fragments 10. Comment: 8 pieces with fresh glass, similar to #1						archive	

SO208 DR122
Description of Location and Structure: axial smt; "donut" shaped smt, NW flank is dredged

Dredge on bottom	UTC 25/08/10 22:25hrs, lat 00°43,70'N, long 87°45,70'W, depth 2145m
Dredge off bottom	UTC 26/08/10 00:30hrs, lat 00°43,60'N, long 87°45,36'W, depth 1931m
total volume:	several rocks
Comments:	sheet lava with super fresh glass

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR122-1	1. Rock Type: pillow fragment, fresh 2. Size: 13x12x9 3. Shape / Angularity: subangular - rounded 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, vesicles <1% 6. Phenocrysts: fsp: 1-2%, fresh, submm.mm, needle-like, platty 7. Matrix: crypto-microcrystalline 9. Encrustations: glass crust 2-3mm 10. Comment: thick glass crust, fresh material, very good sample, piece was not cut for GC because of little bulk				x		EMP	
SO208 DR122-2	1. Rock Type: sheet lava 2. Size: 10x7x6 3. Shape / Angularity: subangular 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, vesicles 10%, partly elongated 6. Phenocrysts: pyx: fresh, submm, fsp: fresh, submm, Ol (?): fresh, submm 7. Matrix: cryptocrystalline 8. Secondary Minerals: sediment in vesicles, some FeOH lining in vesicles 9. Encrustations: glass crust 2-3mm 10. Comment: thick glass crust, piece was not cut because of little bulk				x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR122-3	1. Rock Type: sheet lava 2. Size: 12x10x8 10. Comment: similar to #2				x		EMP	
SO208 DR122-4	1. Rock Type: sheet lava 2. Size: 8x7x5 10. Comment: similar to #2 but big degassing pipes and partly elongated vesicles and cracks				x		EMP	
SO208 DR122-5	1. Rock Type: sheet lava 2. Size: 12x10x7 10. Comment: similar to #2				x		EMP	
SO208 DR122-6	1. Rock Type: sheet lava 2. Size:8x8x5 10. Comment: similar to #2				x		EMP	
SO208 DR122-7	1. Rock Type: sheet lava 2. Size: 11x7x6 10. Comment: similar to #2				x		EMP	
SO208 DR122-8	1. Rock Type: sheet lava 2. Size:8x7x6 10. Comment: similar to #2				x		EMP	
SO208 DR122-9	1. Rock Type: sheet lava 2. Size: 9x8x7 10. Comment: similar to #2				x		EMP	
SO208 DR122-10	1. Rock Type: sheet lava 2. Size: 11x7x5 10. Comment: similar to #1 but huge fsp in glass rim, fsp: platty, about 6mm in diameter, appears fresh				x		EMP	

Appendix IIb (Rock Description Leg 2)

SAMPLE #	SAMPLE DESCRIPTION	TS	CHEM	Ar/Ar Grade	GL/MIN	SED	NOTES	PICTURE
SO208 DR122-11	1. Rock Type: sheet lava 2. Size: 11x7x5 10. Comment: similar to #2 but only chips of glass were sampled for EMA				x		EMP	
SO208 DR122-12	1. Rock Type: sheet lava 2. Size: 8x6x4 10. Comment: similar to #2 but only chips of glass were sampled for EMA, less vesicularity than #2, vesicles <3%				x		EMP	
SO208 DR122-13	1. Rock Type: sheet lava 2. Size: 9x5x5 10. Comment: but similar to #2 but only chips of glass were sampled for EMA, vesicles 1%				x		EMP	
SO208 DR122-14	1. Rock Type: lava, sheet flow, fresh 2. Size: 17x11x9 3. Shape / Angularity: angular - irregular shape 4. Color of cut surface: dark grey / black 5. Texture / Vesicularity: aphyric, vesicles difficult to determine 7. Matrix: glassy - cryptocrystalline 8. Secondary Minerals: sediment in vesicles, Fe-OH min in vesicles and cracks 9. Encrustations: glass crust 3mm 10. Comment: very nice piece of lava flow with flow signature, very cracked and embedded sediment				x		EMP	
SO208 DR122-15	1. Rock Type: pillow fragment 2. Size: 16x14x10 3. Shape / Angularity: subrounded 4. Color of cut surface: dry: dark grey 5. Texture / Vesicularity: aphyric, vesicles <1% 6. Phenocrysts: fsp: 2%, fresh, platty, submm-mm; pyx: 1%, fresh, blocky, submm-mm 7. Matrix: microcrystalline 8. Secondary Minerals: FeOH along cracks 9. Encrustations: glass crust 1mm 10. Comment: nice pillow with only few glass	x			x		EMP	
SO208 DR122-16-X	1. Rock Type: sheet lava 2. Size: between 5x3x4 and 10x7x7 10. Comment: 21 small pieces						archive	

SO208 TVG123 **Description of Location and Structure: axial smt; continuation of dredge track from rim down into the crater**	
TVG on bottom	UTC 26/08/10 02:10hrs, lat 00°43,43'N, long 87°45,28'W, depth 1939m
TVG off bottom	UTC 26/08/10 03:17hrs, lat 00°42,95'N, long 87°45,22'W, depth 1913m
total volume:	empty
Comments:	

SO208 MUC124 **Description of Location and Structure: S of CNS**	
MUC on bottom	UTC 26/08/10 06:48hrs, lat 00°36,54'N, long 87°31,66'W, depth 2494m
MUC off bottom	UTC 26/08/10 06:49hrs, lat 00°36,54'N, long 87°31,66'W, depth 2490m
total volume:	12 of 12
Comments:	sediment

SO208 Sediment Sampling

Abbreviations: gDr = geological dredge, TVG = TV grab, MUC = TV-multicorer

SO208 - MUC3 deep-sea plain
MUC on bottom UTC 17/07/10 18:15hrs, lat 8°10,855'N, long 90°00,71'W, depth 3459m
MUC off bottom UTC 17/07/10 18:18hrs, lat 8°10,855'N, long 90°00,71'W, depth 3459m
MUC, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Botryostrobus aurilis	
	Lophospyris pentagona pentagona	
	Perypiramis circumtexta	
	Phormostichoartus corbula	
	Tholospyris	
Spumellaria	*Amphirhopalum ypsilon*	
	Octopyle stenozona	
	Spongodiscus resurgens	

SO208 - TVG8 "Horseshoe"; round structure with with central crater, 2nd "donut" from N, from top of NE crater rim into crater
TVG on bottom UTC 18/07/10 22:46hrs, lat 6°53,99'N, long 91°34,71'W, depth 3195m
TVG off bottom UTC 19/07/10 00:10hrs, lat 6°53,88'N, long 91°34,82'W, depth 3312m
Comments: mud
TVG, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Carpocanium	
	Cornutella profunda	
	Corocalyptra cervus	
	Dictyocephalus papillosus	
	Eucyrtidium hexastichum	
	Lamprocyclas maritalis	
	Perypiramis circumtexta	
	Phormospyris stabilis scaphipes	
	Pterocorys minythorax	
	Theocorythium trachelium	
	Tholospyris	
	Zygocircus productus	
Spumellaria	*Dictyocoryne profunda*	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Euchitonia elegans	
	Heliaster hexagonium	
	Octopyle stenozona	
	Spogocore cylindrica	
	Spogodiscus resurgens	
	Stylatractus	
	Stylodictya	

SO208 - DR9 "Horseshoe"
Dredge on bottom UTC 19/07/10 03:18hrs, lat 6°53,80'N, long 91°35,11'W, depth 3288m
Dredge off bottom UTC 19/07/10 03:58hrs, lat 6°53,60'N, long 91°35,34'W, depth 3232m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Botryostrobus auritis	
	Carpocanium	
	Cornutella profunda	
	Dictyocephalus cervus	
	Lithostrobus hexagonalis	
	Perypiramis circumtexta	
	Phormospyris stabilis scaphipes	
	Ptecorys minythorax	
	Pterocanium trilobum	
	Tholospyris	
Spumellaria	*Amphirhopalum ypsilon*	
	Cubotholus	
	Didymocyrtis tetrathalamus	
	Octopyle stenozona	
	Spongocore cylindrica	
	Spongodiscus resurgens	

SO208 - DR10 "Krapfen", small irregular ridge shaped seamount, 3,5nm SW of "Horseshoe"
Dredge on bottom UTC 19/07/10 07:01hrs, lat 6°51,80'N, long 91°38,55'W, depth 3567m
Dredge off bottom UTC 19/07/10 07:53hrs, lat 6°51,47'N, long 91°38,59'W, depth 3572m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Carpocanium	
	Corocalyptra cervus	
	Dictyocephalus papillosus	
	Dictyophimus infabricatus	
	Phormostichoartus corbula	
	Pterocanium trilobum	
	Theocorythium trachelium	
	Tholospyris	
Spumellaria	*Acanthosphaera actinote (?)*	
	Carposphaera acanthophora	
	Dictyocoryne profunda	
	Octopyle stenozona	
	Spogocore cylindrica	
	Stylodictya	

SO208 - MUC13 smt "Embryo" top
MUC on bottom UTC 19/07/10 23:23hrs, lat 06°45,71'N, long 92°95,55'W, depth 2878m
MUC off bottom UTC 19/07/10 23:24hrs, lat 06°45,71'N, long 92°95,55'W, depth 2880m
MUC, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Carpocanium	
	Coracalyptra cervus	
	Cornutella profunda	
	Eucyrtidium acuminatum	
	Lamprocyclas maritalis	
	Lithostrobus hexagonalis	
	Losphospyris pentagona pentagona	
	Perypiramis circumtexta	
	Phormostichoartus corbula	
	Pterocorys minythorax	
	Theocorythium trachelium	
	Tholospyris	
Spumellaria	*Cubotholus*	
	Dictyocoryne profunda	
	Didymocyrtis tetrathalamus	
	Euchitonia elegans	
	Octopyle stenozona	
	Spongaster tetras tetras	
	Spongocore cylindrica	
	Spongodiscus resurgens	
	Stylatractus	
	Stylodictya	

SO208 - MUC14 deep sea plain
MUC on bottom UTC 20/07/10 02:09hrs, lat 06°48,28'N, long 92°06,83'W, depth 3639m
MUC off bottom UTC 20/07/10 02:10hrs, lat 06°48,28'N, long 92°06,72'W, depth 3640m
MUC, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Botryostrobus auritus	
	Carpocanium	
	Cornutella profunda	
	Corocalyptra cervus	
	Dictyocephalus papillosus	
	Lamprocyclas maritalis	
	Lithostrobus hexagonalis	
	Lophospyris pentgona pentagona	
	Perypiramis circumtexta	
	Phormospyris stabilis scaphipes	
	Phormostichoartus corbula	
	Pterocanium trilobum	
	Pteroscenium pinnatum	
	Siphocampe lineata	
	Theopilium tricostatum	
	Tholospyris	
	Zygocircus productus	
Spumellaria	*Acanthosphaera actinota*	
	Acanthosphaera pinchuda	
	Acrosphaera murrayana	
	Amphirhopalum ypsilon	
	Carposphaera acanthophora	
	Cladococcus cervicornis	
	Collosphaera tuberosa	
	Cubotholus	
	Dictyocoryne profunda	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Euchitonia elegans	
	Heliaster hexagonium	
	Heliodiscus asteriscus	
	Hexacontium laevigatum	
	Larcopyle butschili	
	Larcospira quadrangula	
	Octopyle stenozona	
	Saturnalis circularis	
	Solenosphaera chierchiae	
	Spogodiscus resurgens	
	Spongaster tetras tetras	
	Spongocore cylindrica	
	Spongoliva ellipsoides	
	Spongurus	
	Stylatractus	
	Stylodictya aculeata	
	Stylodictya multispina	

SO208 - DR15 "Spiegelei", flat topped circular smnt with cone like structure on the western flank; samples were taken along northern flank

Dredge on bottom UTC 20/07/10 12:20hrs, lat 06°56,80'N, long 91°28,20'W, depth 3104m
Dredge off bottom UTC 20/07/10 13:35hrs, lat 07°56,42'N, long 91°28,24'W, depth 2783m
gDR sediment

	TAXA	NOTES
Radiolaria		
	Tholospyris	
	Carpocanium	
	Dictyocephalus papillosus	
	Anthocyrtidium ophirense	
	Phormostichoartus corbula	
	Botryostrobus auritus	
	Cornutella profunda	
	Larcospira quadrangula	
	Hexacontium armatum	
	Spongodiscus resurgens	
	Spongocore cylindrica	
	Spongurus	
	Solenosphaera chierchiae	
	Tholospira cervicornis (?)	
	Spongosphaera streptacantha (?)	

SO208 - DR17 - "Eye", 25nm NE of "Looser", circular smnt with highest elevation along western half, top charcterized by several cones in the E, track is along northern slope where a small depression cuts into the flank

Dredge on bottom UTC 21/07/10 04:05hrs, lat 08°45,20'N, long 90°43,37'W, depth 2867m
Dredge off bottom UTC 21/07/10 05:35hrs, lat 08°44,73'N, long 90°43,54'W, depth 2406m
gDr, sediment

	TAXA	NOTES
Radiolaria		
	Dictyocephalus papillosus	
	Tholospyris	
	Botryostrobus auritis	
	Pterocorys minythorax	
	Lamprocyclas maritalis	
	Cornutella profunda	
	Carpocanium	
	Losphospyris pentagona pentagona	
	Larcospira quadrangula	
	Stylatractus	
	Dictyocoryne profunda	
	Amphirhopalum ypsilon	
	Carposphaera acanthophora	
	Acanthosphaera dodecastyla	
	Larcopyle butschlii	

SO208 - DR18 - "Knob" ca 30nm SSE of DR17 "Eye"; NE flank at lower section
Dredge on bottom UTC 21/07/10 11:31hrs, lat 08°34,79'N, long 90°16,61'W, depth 3227m
Dredge off bottom UTC 21/07/10 12: hrs, lat 08°34,61'N, long 90°16,80'W, depth 2850m
gDR, no sediment

	TAXA	NOTES
Radioalaria		
	Dictyophimus infabricatus	
	Tholospyris	
	Lamprocyclas maritalis	
	Botryostrobus auritus	
	Pterocorys minythorax	
	Phormospyris stabilis scaphipes	
	Siphocampe lineata (?)	
	Stylodictya	
	Acanthosphaera pinchuda	
	Spongocore cylindrica	

SO208 - MUC19 top of smt
MUC on bottom UTC 21/07/10 18:02hrs, lat 08°43,31'N, long 90°44,14'W, depth 2426m
MUC off bottom UTC 21/07/10 18:04hrs, lat 08°43,31'N, long 90°44,14'W, depth 2426m
MUC, sediment

	TAXA	NOTES
Radiolaria		
	Lamprocyclas maritalis	
	Pterocorys minythorax	
	Pterocanium trilobum	
	Anthocyrtidium ophirense	
	Acanthosphaera pinchuda	
	Carposphaera acanthophora	
	Stylodictya aculeata	
	Stylatractus	
	Actinomma sol (?)	

SO208 - MUC20 abyssal plain
MUC on bottom UTC 21/07/10 20:43hrs, lat 08°46,60'N, long 90°38,45'W, depth 3513m
MUC off bottom UTC 21/07/10 20:44hrs, lat 08°46,61'N, long 90°38,45'W, depth 3487m
MUC, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Anthocyrtidium zanguebaricum	
	Botryostrobus auritus	
	Carpocanium	
	Cornutella profunda	
	Dictyocephalus papillosus	
	Dictyophimus hirundo	
	Eucyrtidium hexastichum	
	Lamprocyrtis hannai	
	Litharachnium tentorium	
	Perypiramis circumtexta	
	Phormospyris stabilis scaphipes	
	Phormostichoartus corbula	
	Pterocanium trilobum	
	Pterocorys minythorax	
	Sethophormis aurelia	
	Theopilium tricostatum	
	Tholospyris	
	Trilocampe cylindrica	
	Zygocircus productus	
Spumellaria	*Acanthosphaera dodecastyla*	
	Acrosphaera murrayana	
	Amphirhopalum ypsilon	
	Carposphaera acanthophora	
	Dictyocoryne profunda	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Euchitonia elegans	
	Hexacontium armatum	
	Spongodiscus resurgens	
	Stylatractus	
	Stylodictya aculeata	

SO208 - DR21 "Pickel", NE-SW striking volcanic (?) ridge with numerous cones. "Pickel" lies at the SE termination of the ridge
Dredge on bottom UTC 22/07/10 06:22hrs, lat 09°37,86'N, long 89°50,65'W, depth 3329m
Dredge off bottom UTC 22/07/10 07:42hrs, lat 09°37,53'N, long 89°50,96'W, depth 3029m
gDR,sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Eucyrtidium hexastichum*	
	Lampromitra quadricuspis	
	Pterocorys minythorax	
Spumellaria	*Carposphaera acanthophora*	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Spongodiscus resurgens	

SO208 - TVG22 top of smt "Pickel"
TVG on bottom UTC 22/07/10 19:01hrs, lat 10°35,45'N, long 88°49,99'W, depth 2634m
TVG off bottom UTC 22/07/10 19:32hrs, lat 10°35,59'N, long 88°50,17'W, depth 2708m
TVG, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Botryostrobus auritus	
	Cornutella profunda	
	Dictyocephalus papillosus	
	Eucyrtidium hexastichum	
	Lamprocyclas maritalis	
	Phormospyris stabilis scaphipes	
	Phormostichoartus corbula	
	Pterocanium trilobum	
	Pterocorys minythorax	
	Siphocampe lineata	
	Stylochlamydium asteriscus	
Spumellaria	*Acanthosphaera dodecastyla*	
	Dictyocoryne profunda	
	Hexacontium armatum	
	Larcospira quadrangula	
	Octopyle stenozona	
	Spongodiscus resurgens	
	Stylatractus	
	Stylodictya aculeata	

SO208 - DR23 "Bend fault Seamount"; smt cut by several NW-SE striking band faults, track goes along scarp at NW cone of smt
Dredge on bottom UTC 23/07/10 03:01hrs, lat 10°46,19'N, long 87°53,51'W, depth 1838m
Dredge off bottom UTC 23/07/10 03:57hrs, lat 10°45,91'N, long 87°53,75'W, depth 1735m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Theocorythium trachelium*	
	Eucyrtidium hexastichum	
	Lamprocyclas maritalis	
	Stylochlamydium asteriscus	
Spumellaria	*Cenosphaeria (?)*	
	Dictyocryne profunda	
	Didymocyrtis tetrathalamus	
	Euchitonia elegans	

SO208 - DR25 "Bend fault Seamount", base of smt along it´s NE flank, 2,5 nm NE of DR24
Dredge on bottom UTC 23/07/10 10:20hrs, lat 10°47,46'N, long 87°50,46'W, depth 2574m
Dredge off bottom UTC 23/07/10 11:40hrs, lat 10°47,16'N, long 87°50,79'W, depth 2220m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Botryostrobus auritus*	
	Eucyrtidium hexastichum	
	Lipmanella dictyoceras	
	Phormostichoartus corbula	
	Pterocorys minythorax	
Spumellaria	*Carposphaera acanthophora*	
	Dictyocoryne profunda	
	Spongotrochus glacialis	

SO208 - DR26 "Little Bend Seamount"; 9nm SE of "Bend fault Seamount I", small round structure, NW-facing slope

Dredge on bottom UTC 23/07/10 14:52hrs, lat 10°41,12'N, long 87°45,52'W, depth 2995m
Dredge off bottom UTC 23/07/10 15:40hrs, lat 10°40,91'N, long 87°45,28'W, depth 2680m

gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium zanguebaricum*	
	Botryostrobus auritus	
	Carpocanium	
	Dictyophimus gracilipes (?)	
	Eucyrtidium hexastichum	
	Lamprocyclas maritalis	
	Perypiramis circumtexta	
	Phormostichoartus corbula	
Spumellaria	*Acrosphaera murrayana*	
	Dictyocoryne profunda	
	Didymocyrtis tetrathalamus	
	Euchitonia elegans	
	Siphonosphaera martensi (?)	
	Spongodiscus resurgens	
	Stylodictya aculeata	

SO208 - MUC27 Shelf

MUC on bottom UTC 23/07/10 23:21hrs, lat 11°24,92'N, long 86°51,99'W, depth 132m
MUC off bottom UTC 23/07/10 23:23hrs, lat 11°24,92'N, long 86°51,99'W, depth 132m

MUC, sediment

	TAXA	NOTES
Radiolaria		Muc with very few radiolaria in quantities
Nasselaria	Lophospyris pentagona pentagona	
	Spirocyrtis scalaris	
	Tholospyris	
Spumellaria	Dictyocoryne profunda	
	Spongodiscus resurgens	
	Larcospira quadrangula	
	Stylodictya aculeata	
	Octopyle stenozona	

SO208 - MUC28 Shelf

MUC on bottom UTC 24/07/10 02:01hrs, lat 11°08,94'N, long 86°33,93'W, depth 162m
MUC off bottom UTC 24/07/10 02:01hrs, lat 11°08,94'N, long 86°33,93'W, depth 162m

MUC, sediment

	TAXA	NOTES
Radiolaria		Muc wih very few radiolaria in quantities
Nasselaria	Phormostichoatus corbula	
Spumellaria	Arcosphaera murrayana	
	Larcospira quadrangula	
	Stylodictya aculeata	

SO208 - DR29 "Schrippe"; base of NW-flank cut by NW-SE striking bend fault
Dredge on bottom UTC 24/07/10 09:12hrs, lat 10°25,45'N, long 87°14,65'W, depth 3400m
Dredge off bottom UTC 24/07/10 10:05hrs, lat 10°25,15'N, long 87°14,80'W, depth 3109m
gDR, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Euryrtidium acuminatum	
	Lophophaena hispida	
	Phormospyris stabilis scaphipes	
	Zygocircus productus	
Spumellaria	*Cubotholus*	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Spongodiscus resurgens	
	Spongorus polymaticus	
	Stylatractus	
	Stylodictya aculeata	

SO208 - DR30 "Schrippe"; 800m upslope of DR29 at steeper slope
Dredge on bottom UTC 24/07/10 12:19hrs, lat 10°24,61'N, long 87°14,79'W, depth 2848m
Dredge off bottom UTC 24/07/10 13:49hrs, lat 10°24,23'N, long 87°15,10'W, depth 2400m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Dictyophimus infabricatus*	
	Phormospyris stabilis scaphipes	
	Pterocanium trilobum	
	Zygocircus productus	
Spumellaria	*Amphirhopalum ypsilon*	
	Dictyocoryne truncatum	
	Hexacontium armatum	
	Octopyle stenozona	
	Stylodictya	

SO208 - DR31 "Ammonit"; smt 30nm S of DR30, circular shaped smt, dredge on NE-facing slope
Dredge on bottom UTC 24/07/10 19:47hrs, lat 09°54,17'N, long 87°16,08'W, depth 3038m
Dredge off bottom UTC 24/07/10 21:10hrs, lat 09°53,97'N, long 87°16,50'W, depth 2584m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Cornutella profunda*	
	Hexacontium armatum	
	Pterocanium trilobum	
	Tholospyris	
Spmellaria	*Amphirhopalum ypsilon*	
	Euchitonia elegans	
	Spongaster tetras tetras	
	Stylodictya	

SO208 - DR32 "Guardian Seamount", smt 25nm SWS of DR31, NW-flank below "flat top area, southern part of top area occupied by cone

Dredge on bottom UTC 25/07/10 03:00hrs, lat 9°38,46'N, long 87°40,50'W, depth 2640m
Dredge off bottom UTC 25/07/10 04:19hrs, lat 9°38,11'N, long 87°40,23'W, depth 2095m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Cornutella profunda	
	Cyrtopera laguncula	
	Lamprocyclas maritalis	
	Pterocorys minythorax	
	Tholospyris	
	Zygocircus productus	
Spumellaria	*Carposphaera acanthophora*	
	Didymocyrtis tetrathalamus	
	Hexacontium armatum	
	Larcospira quadrangula	
	Spongaster tetras tetras	
	Spongodiscus resurgens	
	Stylodictya aculeata	

SO208 - DR33 "Kringel", 20nm SW of DR32; smt with horseshoe shaped crater open to the S, track along northern flank

Dredge on bottom UTC 25/07/10 09:23hrs, lat 09°24,45'N, long 87°50,42'W, depth 2716m
Dredge off bottom UTC 25/07/10 11:13hrs, lat 09°24,34'N, long 87°50,38'W, depth 2576m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Botryostrobus auritus	
	Corocalyptra cervus	
	Eucyrtidium hexastichum	
	Plagoniidae	
	Spirocyrtis scalaris	
	Theocorythium trachelium	
	Tholospyris	
	Triceraspyris antartica (?)	
Spumellaria	*Carposphaera acanthophora*	
	Cubotholus	
	Heliodiscus asteriscus	
	Octopyle stenozona	
	Saturnalis circularis	
	Solenosphaera chierchiae	
	Spongocore cylindrica	
	Stylatractus	
	Stylodictya	

SO208 - MUC34 "Bagel", smt with central crater-like depression

MUC on bottom UTC 25/07/10 16:17hrs, lat 09°07,51'N, long 87°26,51'W, depth 2625m

MUC off bottom UTC 25/07/10 16:18hrs, lat 09°07,51'N, long 87°26,51'W, depth 2625m

Comments: ca. 10-15cm surface sediment

MUC, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Botryostrobus auritus	
	Carpocanium	
	Cornutella profunda	
	Lamprocyclas maritalis	
	Lithostrobus hexagonalis	
	Phormospyris stabilis scaphipes	
	Pterocorys minythorax	
	Siphocampe lineata	
	Trilocampe cylindrica	
	Zygocircus productus	
Spumellaria	*Acrosphaera murrayana (?)*	
	Amphirhopalum ypsilon	
	Carposphaera acanthophora	
	Dictyocoryne profunda	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Hexacontium armatum	
	Octopyle stenozona	
	Spongodiscus resurgens	
	Stylatractus	
	Stylodictya aculeata	

SO208 - MUC 35 - 3nm E of smt "Bagel", deep sea plain
MUC on bottom UTC 25/07/10 19:00hrs, lat 09°07,50'N, long 87°23,74'W, depth 3151m
MUC off bottom UTC 25/07/10 19:02hrs, lat 09°07,50'N, long 87°23,74'W, depth 3151m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	Anthocyrtidium ophirense	
	Botryostrobus auritus	
	Cornutella profunda	
	Corocalyptra cervus	
	Eucyrtidium acuminatum	
	Lamprocyclas maritalis	
	Litharachnium tentorium	
	Lithostrobus hexagonalis	
	Lophospyris pentagona pentagona	
	Phormostichoartus corbula	
	Pterocanium trilobum	
	Pterocorys minythorax	
	Theopilium tricostatum	
	Tholospyris	
Spumellaria	Aconthosphaera pinchuda	
	Acrosphaera murrayana	
	Amphirhopalum ypsilon	
	Collosphaera tuberosa	
	Cubotholus	
	Dictyocoryne profunda	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Heliosoma echinaster (?)	
	Hexacontium armatum	
	Hexacontium laevigatum	
	Octopyle stenozona	
	Saturnalis circularis	
	Stylatractus	
	Stylodictya multispina	

SO208 - DR36 - "Bagel" smt, NE-flank of a cratered smt
Dredge on bottom UTC 25/05/10 21:30hrs, lat 09°08,59'N, long 87°25,41'W, depth 2882m
Dredge off bottom UTC 25/05/10 22:58hrs, lat 09°08,56'N, long 87°25,51'W, depth 2795m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Lophospyris pentagona pentagona*	
	Pterocanium trilobum	
	Pterocorys minythorax	
Spumellaria	*Amphirhopalum ypsilon*	
	Dictyocoryne truncatum	
	Octopyle stenozona	

SO208 - DR37 - "Ojo" smt, NE-flank
Dredge on bottom UTC 26/07/10 03:01hrs, lat 09°22,22'N, long 87°14,73'W, depth 2654m
Dredge off bottom UTC 26/07/10 04:05hrs, lat 09°22,36'N, long 87°14,99'W, depth 2339m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Cornutella profunda*	
	Losphospyris pentagona pentagona	
	Zygocircus productus	
Spumellaria	*Carposphaera acanthophora*	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Spongaster tetras tetras	
	Stylodictya	

SO208 - DR38 - "Zecke", about 12nm NNE of DR37; oval shaped smt with smooth flanks, dredge along north side
Dredge on bottom UTC 26/07/10 08:03hrs, lat 09°26,70'N, long 87°04,59'W, depth 3002m
Dredge off bottom UTC 26/07/10 08:03hrs, lat 09°26,70'N, long 87°04,59'W, depth 3002m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Cornutella profunda	
	Corocalyptra cervus	
	Phormospyris stablis scaphipes	
	Phormostichoartus corbula	
	Pterocorys minythorax	
	Pteroscenium pinnatum	
	Zygocircus productus	
Spumellaria	*Acanthosphaera dodecastyla*	
	Acrosphaera spinosa	
	Carposphaera acanthophora	
	Dictyocoryne profunda	
	Didymocyrtis tetrathalamus	
	Heliodiscus asteriscus	
	Octopyle stenozona	
	Spongodiscus resurgens	

SO208 - DR40 - "the hill", smnt 1,8nm NE of DR39 on a small separate hill/cone, NE facing flank
Dredge on bottom UTC 26/07/10 16:57hrs, lat 09°09,24'N, long 86°55,11'W, depth 2954m
Dredge off bottom UTC 26/07/10 18:09hrs, lat 09°09,22'N, long 86°55,24'W, depth 2874m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	Anthocyrtidium ophirense	
	Botryostrobus australis	
	Lamprocyclas maritalis	
Spumellaria	Dictyocoryne truncatum	
	Carposphaera acanthophora	
	Stylodictya	

SO208 - MUC41 - deep sea plain
MUC on bottom UTC 26/07/10 20:44hrs, lat 09°09,65'N, long 86°52,33'W, depth 3118m
MUC off bottom UTC 26/07/10 20:45hrs, lat 09°09,65'N, long 86°52,33'W, depth 3113m
MUC, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	Anthocyrtidium ophirense	
	Botryostrobus auritus	
	Dictyophimus hirundo	
	Eucyrtidium hexastichum	
	Lamprocyclas maritalis	
	Lampromitra quadricuspis	
	Lophospoyris pentagona pentagona	
	Pterocorys minythorax	
	Theopilium tricostatum	
	Trilocampe cylindrica	
Spumellaria	Acrosphaera murrayana	
	Amphirhopalum ypsilon	
	Dictyocoryne profunda	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Hexacontium aristarchi (?)	
	Saturnalis circularis	
	Stylatractus	
	Stylodictya aculeata	

SO208 - MUC42 - location "G", N of CNS, 1nm W of DR50 along the same "ridge"
MUC on bottom UTC 05/08/10 12:19hrs, lat 02°19,81'N, long 91°19,05'W, depth 2418m
MUC off bottom UTC 05/08/10 12:22hrs, lat 02°19,81'N, long 91°19,05'W, depth 2418m
Comments: stratified sediment
MUC, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	Anthocyrtidium ophirense	
	Botryostrobus auritus	
	Carpocanium	
	Cornutella profunda	
	Corocalyptra cervus	
	Dictyocephalus papillosus	
	Dictyophimus hirundo	
	Eucyrtidium hexastichum	
	Lamprocyclas maritalis	
	Lipmanella dictyoceras	
	Lophospyris pentagona pentagona	
	Perypiramis circumtexta	
	Phormospyris stabilis scaphipes	
	Phormostichoartus corbula	
	Pterocanium trilobum	
	Pterocorys minythorax	
	Pterocorys zancleus	
	Siphocampe lineata	
	Spirocyrtis scalaris (?)	
	Theocorythium trachelium	
	Theopilium tricostatum	
	Tholospyris	
	Zygocircus productus	
Spumellaria	Amphirhopalum ypsilon	
	Amphispyris reticulata	
	Carposphaera acanthophora	
	Cladococcus megaceros	
	Collosphaera huxleyi	
	Dictyocoryne profunda	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Euchitonia elegans	
	Heliodiscus asteriscus	
	Hexacontium armatum	
	Larcospira quadrangula	
	Octopyle stenozona	
	Plegmosphaera entodictyon (?)	
	Pylolena armata	
	Spongaster tetras tetras	
	Spongocore cylindrica	
	Spongodiscus resurgens	
	Spongoliva ellipsoides	
	Spongurus	
	Stylatractus	
	Stylochlamydium asteriscus	
	Stylodictya aculeata	

SO208 - DR67 - N of CNS, E-W striking fault scarp, northernmost part of SO208 mapped area, S-facing slope

Dredge on bottom UTC 09/08/10 03:27hrs, lat 02°24,84'N, long 91°49,85'W, depth 2571m
Dredge off bottom UTC 09/08/10 04:19hrs, lat 02°25,18'N, long 91°49,82'W, depth 2370m
gDr

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Botryostrobus auritus	
	Phormostichoartus corbula	
	Pterocorys minythorax	
Spumellaria	*Larcospira quadrangula*	
	Octopyle stenozona	
	Stylodictya	

SO208 - TVG 70 - "Elly" smt, almost on top
TVG on bottom UTC 09/08/10 15:19hrs, lat 02°17,98'N, long 91°44,17'W, depth 2168m
TVG off bottom UTC 09/08/10 16:10hrs, lat 02°17,81'N, long 91°44,35'W, depth 2307m
gDr, sediment

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Botryostrobus auritus	
	Carpocanium	
	Cornutella profunda	
	Corocalyptra cervus	
	Eucyrtidium hexastichum	
	Lamprocyclas maritalis	
	Phormostichoartus corbula	
	Pterocanium trilobum	
	Pterocorys minythorax	
	Theocorythium trachelium	
	Theopilium tricostatum	
	Tholospyris	
Spumellaria	*Acanthosphaera dodecastyla*	
	Acrosphaera murrayana (?)	
	Cladococcus cervicornis	
	Cubotholus	
	Dictyocoryne truncatum	
	Didymocyrtis tetrathalamus	
	Heliosoma echinaster	
	Hexacontium laevigatum	
	Larcospira quadrangula	
	Octopyle stenozona	
	Spogondiscus resurgens	
	Spongaster tetras tetras	
	Stylatractus	
	Stylodictya	

SO208 - gDR 73 - North of CNS, E-W striking ridge, along N-facing slope
Dredge on bottom UTC 10/08/10 03:42hrs, lat 02°27,56'N, long 91°48,73'W, depth 2466m
Dredge off bottom UTC 10/08/10 04:39hrs, lat 02°27,30'N, long 91°48,88'W, depth 2347m
gDr

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Botryostrobus auritus	
	Carpocanium	
	Cornutella profunda	
	Eucyrtidium hexastichum	
	Lamprocyclas maritalis	
	Pterocanium trilobum	
	Theopilium tricostatum	
Spumellaria	*Dictyocoryne truncatum*	
	Heliodiscus asteriscus	
	Larcospira quadrangula	
	Stylodictya	

SO208 - DR 82 - North of CNS
Dredge on bottom UTC 18/08/10 23:35hrs, lat 01°02,51'N, long 90°12,06'W, depth 2403m
Dredge off bottom UTC 19/08/10 00:42hrs, lat 01°02,83'N, long 90°11,80'W, depth 2231m
gDr

	TAXA	NOTES
Radiolaria		
Nasselaria	*Acrosphaera spinosa*	
	Botryostrobus auritus	
	Carpocanium	
	Cornutella profunda	
	Eucyrtidium hexastichum	
	Lithostrobus hexagonalis	
	Perypiramis circumtexta	
	Phormospyris stabilis scaphipes	
	Plagoniidae	
	Pterocorys minythorax	
	Pteroscenium pinnatum	
	Trilocampe cylindrica	
Spumellaria	*Amphirhopalum ypsilon*	
	Carposphaera acanthophora	
	Dictyocoryne profunda	
	Didymocyrtis tetrathalamus	
	Heliodiscus asteriscus	
	Hexacontium armatum	
	Larcopyle butschlii	
	Octopyle stenozona	
	Spongodiscus resurgens	
	Stylatractus	
	Stylodictya aculeata	

SO208 - MUC 93 - 9nm north of the axis ridge, top area of an abyssal high.
MUC on bottom UTC 20/08/10 18:48hrs, lat 0°58,41'N, long 89°28,93'W, depth 2294m
MUC off bottom UTC 20/08/10 18:50hrs, lat 0°58,41'N, long 89°28,92'W, depth 2294m
MUC

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Anthocyrtidium zanguebaricum	
	Botryostrobus auritus	
	Carpocanium	
	Cornutella profunda	
	Corocalyptra cervus	
	Corocalyptra columba	
	Cromyomma circumtextum (?)	
	Cryrtopera laguncula	
	Dictyocephalus papillosus	
	Dictyophimus hirundo	
	Dictyophimus infabricatus	
	Eucyrtidium acuminatum	
	Eucyrtidium hexastichum	
	Lamprocyclas maritalis	
	Lamprocyrtis hannai	
	Lampromitra quadricuspis	
	Lophospyris pentagona pentagona	
	Perypiramis circumtexta	
	Phormospyris stabilis scaphipes	
	Phormostichoartus corbula	
	Pterocanium praetextum	
	Pterocanium trilobum	
	Pterocorys minythorax	
	Pteroscenium pinnatum	
	Theocorythium trachelium	
	Tholospyris	
	Trilocampe cylindrica	
	Zygocircus productus	
Spumellaria	*Acanthosphaera dodecastyla*	
	Acrosphaera huxleyi	
	Acrosphaera spinosa	
	Acrosphaera tuberosa	
	Carposphaera acanthophora	
	Dictyocoryne profunda	
	Didymocyrtis tetrathalamus	
	Euchitonia elegans	
	Heliaster hexagonium	
	Heliodiscus asteriscus	
	Hexacontium armatum	
	Larcopyle butschlii	
	Larcospira quadrangula	
	Octopyle stenozona	
	Spongaster tetras tetras	
	Spongocore cylindrica	
	Spongodiscus resurgens	
	Spongoliva ellipsoides	
	Stylatractus	
	Stylodictya aculeata	

SO208 - DR 102 - north of eastern CNS, northern most end of profile II. Oval shaped seamount within E-W striking through, surrounded by other small cones.

Dredge on bottom UTC 22/08/10 12:11hrs, lat 01°35,71'N, long 89°05,27'W, depth 2513m
Dredge off bottom UTC 22/08/10 13:16hrs, lat 01°35,37'N, long 89°05,02'W, depth 2318m
gDr

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Anthocyrtidium zanguebaricum	
	Botryostrobus auritus	
	Carpocanium	
	Cornutella profunda	
	Corocalyptra cervus	
	Eucyrtidium acuminatum	
	Eucyrtidium hexastichum	
	Lamprocyclas maritalis	
	Lamprocyrtis hannai	
	Lampromitra quadricuspis	
	Lithostrobus hexagonalis	
	Phormospyris stabilis scaphipes	
	Phormostichoartus corbula	
	Pterocanium praetextum	
	Pterocorys minythorax	
	Theopilium tricostatum	
	Trilocampe cylindrica	
Spumellaria	*Acrosphaera spinosa*	
	Amphirhopalum ypsilon	
	Carposphaera acanthophora	
	Dictyocoryne profunda	
	Didymocyrtis tetrathalamus	
	Euchitonia elegans	
	Heliodiscus asteriscus	
	Larcopyle butschlii	
	Larcospira quadrangula	
	Octopyle stenozona	
	Spongaster tetras tetras	
	Spongocore cylindrica	
	Spongodiscus resurgens	
	Stylodictya aculeata	
	Stylodictya multispina	

SO208 - DR 107 - North of CNS, profile II, middle part. E-W striking plateau structure with small cones in central part. Southern part cut by fault.

Dredge on bottom UTC 23/08/10 08:39hrs, lat 01°04,59'N, long 89°06,21'W, depth 2307m
Dredge off bottom UTC 23/08/10 09:53hrs, lat 01°04,88'N, long 89°05,74'W, depth 2164m
gDr

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Anthocyrtidium zanguebaricum	
	Botryostrobus auritus	
	Carpocanium	
	Cornutella profunda	
	Corocalyptra cervus	
	Dictyophimus hirundo	
	Eucyrtidium hexastichum	
	Lampromitra dadaes	
	Phormospyris stabilis scaphipes	
	Phormospyris stabilis stabilis	
	Pterocorys minythorax	
	Pteroscenium pinnatum	
	Zygocircus productus	
Spumellaria	*Acanthosphaera dodecastyla (?)*	
	Carposphaera acanthophora	
	Dictyocoryne profunda	
	Didymocyrtis tetrathalamus	
	Heliodiscus asteriscus	
	Larcopyle butschlii	
	Octopyle stenozona	
	Solenosphaera chierchiae	
	Stylodictya aculeata	
	Stylodictya multispina	

SO208 - MUC 116 - Plain south of CNS
MUC on bottom UTC 24/08/10 16:08hrs, lat 0°25,71'N, long 89°02,27'W, depth 2255m
MUC off bottom UTC 24/08/10 16:10hrs, lat 0°25,71'N, long 89°02,26'W, depth 2253m
MUC

	TAXA	NOTES
Radiolaria		
Nasselaria	*Anthocyrtidium ophirense*	
	Anthocyrtidium zanguebaricum	
	Botryostrobus auritus	
	Cornutella profunda	
	Corocalyptra cervus	
	Eucyrtidium acuminatum	
	Lampromitra quadricuspis	
	Litharachnium tentorium	
	Phormospyris stabilis scaphipes	
	Phormostichoartus corbula	
	Pterocanium trilobum	
	Pterocorys minythorax	
	Stichopilium bicorne	
	Tholospyris	
Spumellaria	*Acrosphaera huxleyi*	
	Carposphaera acanthophora	
	Cladococcus megaceros	
	Dictyocoryne profunda	
	Didymocyrtis tetrathalamus	
	Euchitonia elegans	
	Larcopyle butschlii	
	Larcospira quadrangula	
	Spongodictyon spongiosum	
	Spongodiscus resurgens	
	Stylatractus	
	Stylodictya aculeata	

Appendix IV (Biological Sampling)

SO208 Biological Samples

Abbreviations: n = number of collected specimens, FIX = fixation, F = Formalin, EtOH = 100% pure Ethanol, Glu = 2.5% Glutaraldehyde/PB-buffered, RNA=RNALater. gDr = geological dredge, TVG = TV grab, MUC = TV-multicorer
The numbers 2, 5, 50, 100, 200, 500 and 1000 refer to the size of the vials in ml, WP= Whirl Pack, OT=Orange Tube, LC=Large Cryotube
Fixation of meiofauna from sediment traps as 1 vol sediment : 1 vol 6% formalin

SO208 - DR1: "Pan-Cake" seamount, flat circle shaped seamount, may have small cone on top, very gentle dipping flanks
Dredge on bottom: UTC 17/07/10 5:57hrs, lat 08°13,15'N, long 89°30,47'W, depth 3224 m
Dredge off bottom: UTC 17/07/10 07:05hrs, lat 8°12,67'N, long 89°30,54'W, depth 2992 m
total volume: few rocks
Comments: pillow basalt with glass rims (possibly fresh), pillow fragments without glass but abundant low T alteration halos
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Porifera	2	x								F	hexactinellid and blue/whitish (tunicate?)
	Mollusca	1	x								F	Bivalvia, from sediment tube
	Polychaeta	1	x								F	terebellid tentacle?
	Polychaeta	1	x								F	nereid?
	Crustacea	5			x						F	Cirripedia from ship hull
	Crustacea	1	x								F	Cirripedia from ship hull
	Crustacea?	1	x								F	soft parts inside carapace? from ship hull?
Meiofauna	Nematoda	40	x								F	
	Copepoda	24	x								F	
	Plathelminthes	1	x								F	
	Polychaeta	3	x								F	
	Ostracoda	9	x								F	
	Hydrozoa	31	x								F	
	Sipunculida	1	x								F	
	Crustacea	33	x								F	partly Tanaidacea
	eggs	4	x								F	from Amphipoda?
	Komokiacea	6	x								F	
	Loricifera	1	x								F	

SO208 - DR2: "Half-Moon" seamount, ca 20 nm Northwest of "Pan Cake", cirular shaped seamount, half circle shaped, ridge along the Eastern side
Dredge on bottom: UTC 17/07/10 12:05hrs, lat 08°28,31'N, long 89°45,88'W, depth 2827 m
Dredge off bottom: UTC 17/07/10 13:17hrs, lat 8°27,92'N, long 89°46,15'W, depth 2350 m
total volume: 1/4 full
Comments: pillow fragments, lava flow peices, volcaniclastic rocks poss. with glass
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Brachiopoda	1	x								F	*Bathynanus* sp., from sediment tube

SO208 - MUC3: Deep-sea plain
MUC on bottom: UTC 17/07/10 18:15hrs, lat 8°10,855'N, long 90°00,71'W, depth 3459 m
MUC off bottom: UTC 17/07/10 18:18hrs, lat 8°10,855'N, long 90°00,71'W, depth 3459 m
total volume: 1 tube
MUC, sediment (1 tube), macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Porifera	1	x								F	hexactinellid?
	Polychaeta	>5			x						F	mud tubes from fixed sediment
	Polychaeta	1	x								F	Cirratulidae
	Polychaeta	>3	x								F	tubes, different species
	Crustacea	1	x								F	Amphipoda
	"Pisces"	1	x								F	shark tooth
Meiofauna	Nematoda	395	x								F	
	Copepoda	86	x								F	
	Crustacea	1	x								F	
	Cumacea	1	x								F	
	Foraminifera (soft-bodied)	16	x								F	
	Loricifera	1	x								F	
	Kinorhyncha	3	x								F	
	Ostracoda	17	x								F	
	Polychaeta	7	x								F	
	Plathelminthes	5	x								F	
	Bivalvia	2	x								F	
	Hydrozoa	1	x								F	
	Acari	1	x								F	
	?	3	x								F	

SO208 - MUC4: Seamount top
MUC on bottom: UTC 17/07/10 22:28hrs, lat 8°00,229'N, long 90°80,83'W, depth 2319 m
MUC off bottom: UTC 17/07/10 22:41hrs, lat 8°00,19'N, long 90°80,874'W, depth 2343 m
total volume: empty
Comment: tubes partly closed on their way down, TV shows crusts and rock
MUC, no sediment, no macrofauna

SO208 - DR5: GUATBO1 - Eastern base of "Egg" seamount
Dredge on bottom: UTC 18/07/10 03:04hrs, lat 07°49,72'N, long 90°25,57'W, depth 3410 m
Dredge off bottom: UTC 18/07/10 03:46hrs, lat 07°49,54'N, long 90°25,68'W, depth 3099 m
total volume: empty
gDr, no sediment, no macrofauna

SO208 - DR6: GUATBO1 - "Egg" seamount, Northwest-Southeast striking seamount, oval shaped seamount with steep Eastward dipping flank
Dredge on bottom: UTC 18/07/10 06:42hrs, lat 07°50,32'N, long 90°28,15'W, depth 3096 m
Dredge off bottom: UTC 18/07/10 07:48hrs, lat 07°50,16'N, long 90°28,44'W, depth 2777 m
total volume: very few rocks, 6 small pieces
Comments: pillow fragment with thin, partially fresh glass rims, in situ samples broken off cooling fracture
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Crustacea						x				F	Cirripedia + 2 Polychaeta from ship hull

SO208 - DR7: "Boxy" seamount, largest of three circular seamounts, ca 3.5 km at base, Eastern flank is steeper than Western flank, rising 400m above seafloor
Dredge on bottom: UTC 18/07/10 12:58hrs, lat 07°38,61'N, long 90°52,20'W, depth 3398 m
Dredge off bottom: UTC 18/07/10 14:08hrs, lat 7°38,38'N, long 90°52,52'W, depth 2973 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Porifera	1	x								F	hexactinellid
	Mollusca	1	x								F	Bivalvia, from sediment tube
	Crustacea	3			x						EtOH	Cirripedia from ship hull
	Crustacea	1	x								F	decapod crab, from ship hull?
	"Pisces"	1	x								F	tooth
Meiofauna	Nematoda	55	x								F	
	Copepoda	23	x								F	
	Oligochaeta	1	x								F	
	Polychaeta	3	x								F	
	Ostracoda	1	x								F	
	Loricifera	3	x								F	
	Foraminifera	3	x								F	

SO208 - TVG8: "Horseshoe"; round structure with with central crater, 2nd "donut" from North, from top of Northeastern crater rim into crater
Dredge on bottom: UTC 18/07/10 22:46hrs, lat 6°53,99'N, long 91°34,71'W, depth 3195 m
Dredge off bottom: UTC 19/07/10 00:10hrs, lat 6°53,88'N, long 91°34,82'W, depth 3312 m
TVG, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Porifera	4	x								EtOH	hexactinellids
	Porifera	1	x								F	hexactinellid
	Porifera?	3	x								F	weird tubes, with spicules
	Polychaeta?	1				x					F	branched tubes on Mn-crust
	Polychaeta	>5	x								F	tubes
	Bryozoa	4	x								EtOH	branched colonies with long stalks
	Bryozoa	3	x								EtOH	encrusting colonies
	Bryozoa	2	x								EtOH	tree-trunk like cyclostomes
	Tunicata	1	x								EtOH	with star-like pattern on top
	"Pisces"	1			x						dry	tooth, shark?
	"Pisces"	2	x								F	teeth (1 shark)
Meiofauna	Nematoda	318	x								F	
	Copepoda	55	x								F	
	Polychaeta	19	x								F	
	Sipunculida	4	x								F	
	? worm-like	10	x								F	
	? Komokiacea	6	x								F	
	Bivalvia	1	x								F	
	Tanaidacea	3	x								F	
	?	1	x								F	

SO208 - DR9: "Horseshoe"
Dredge on bottom: UTC 19/07/10 03:18hrs, lat 6°53,80'N, long 91°35,11'W, depth 3288 m
Dredge off bottom: UTC 19/07/10 03:58hrs, lat 6°53,60'N, long 91°35,34'W, depth 3232 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Porifera	>5	x								EtOH	hexactinellids
	Porifera	1	x								EtOH	hexactinellid
	Porifera	2	x								EtOH	hexactinellid
	Polychaeta	3	x								EtOH	Capitellidae?
	Polychaeta	1	x								EtOH	Capitellidae?
	Polychaeta?	4	x								EtOH	branched tubes
	Crustacea	1	x								EtOH	caprellid amphipod, from ship hull
	Crustacea	1	x								EtOH	pieces of cirriped from ship hull
	Crustacea	>5						x			F	barnacles from ship hull, with epizoans
	"Pisces"	2	x								F	eggs
Meiofauna	Nematoda	26	x								F	
	Copepoda	11	x								F	
	Amphipoda	11	x								F	from ship hull?
	Hydrozoa	9	x								F	from ship hull?

SO208 - DR10: "Krapfen", small irregular ridge shaped seamount, 3,5 nm Southwest of "Horseshoe"
Dredge on bottom: UTC 19/07/10 07:01hrs, lat 6°51,80'N, long 91°38,55'W, depth 3567 m
Dredge off bottom: UTC 19/07/10 07:53hrs, lat 6°51,47'N, long 91°38,59'W, depth 3572 m
gDr, sediment, no macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Meiofauna	Nematoda	15	x								F	
	Copepoda	6	x								F	
	Loricifera	1	x								F	

SO208 - DR11: "Donut" ca 10 nm West of "Krapfen"; crater shaped seamount with ringwall-like crater rim. Dredge track along outer Northeastern flank
Dredge on bottom: UTC 19/07/10 11:20hrs, lat 06°51,11'N, long 91°48,37'W, depth 3520 m
Dredge off bottom: UTC 19/07/10 12:39hrs, lat 06°50,89'N, long 91°48,69'W, depth 3290 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Porifera	3	x								EtOH	hexactinellids on matrix (Mn-crust)
	Porifera	1	x								EtOH	hexactinellid, stick-like
	Cnidaria	3	x								EtOH	hydrozoans from ship hull, on cirriped shell
	Polychaeta	2	x								F	tubes
	Polychaeta	1	x								F	from sediment tube
	Crustacea	1								15	F	Galatheid shrimp
	Crustacea	>5						x			F	barnacles from ship hull, with epizoans
	Crustacea	>5						x			F	barnacles from ship hull, with epizoans
	Echinodermata	1	x								EtOH	ophiuroid
	"Pisces"	1	x								F	egg
Meiofauna	Nematoda	18	x								F	
	Copepoda	23	x								F	
	?	1	x								F	
	Polychaeta	1	x								F	
	Amphipoda	1	x								F	
	Hydrozoa	1	x								F	
	? Bryozoa	1	x								F	
	Appendicularia	1	x								F	
	Tardigrada	1	x								F	

SO208 - DR12: "Embryo" 20 nm Southwest of DR11, irregular shaped seamount, Northeastern flank
Dredge on bottom: UTC 19/07/10 17:54hrs, lat 06°46,53'N, long 92°08,91'W, depth 3499 m
Dredge off bottom: UTC 19/07/10 19:36hrs, lat 06°46,44'N, long 92°08,91'W, depth 3417 m
gDr, no sediment, no macrofauna

SO208 - MUC13: Seamount "Embryo" top
MUC on bottom: UTC 19/07/10 23:23hrs, lat 06°45,71'N, long 92°95,55'W, depth 2878 m
MUC off bottom: UTC 19/07/10 23:24hrs, lat 06°45,71'N, long 92°95,55'W, depth 2880 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Porifera	1	x								EtOH	hexactinellid on matrix (Mn-crust)
	Mollusca	1	x								F	Patelloidea
	Cephalopoda	1	x								F	tooth
	Polychaeta	>5	x								F	tubes of different species
	Polychaeta	1	x								EtOH	single tube from Mn-crust
	Sipunculida or Foraminifera	1	x								F	
	Sipunculida	1			x						F	large sipunculid worm
	Crustacea	1	x								EtOH	rather large amphipod?
	Brachiopoda	1	x								EtOH	juvenile *Bathynanus* ?
	Brachiopoda	1	x								EtOH	*Bathynanus* ?
	Brachiopoda	1	x								EtOH	*Amphithyris* ?
	Tunicata	1	x								EtOH	roundish, covered with sediment
	Chondrichthyes	2	x								F	shark tooth
Meiofauna	Nematoda	529	x								F	
	Copepoda	485	x								F	
	Ostracoda	17	x								F	
	Plathelminthes	16	x								F	
	Polychaeta	38	x								F	
	Kinorhyncha	1	x								F	
	Oligochaeta	2	x								F	
	Bivalvia	1	x								F	
	Sipunculida	6	x								F	
	Tardigrada	1	x								F	
	Nemertini	2	x								F	
	? worm-like	22	x								F	
	Loricifera	5+2?	x								F	
	? eggs	7	x								F	
	Aplacophora	1	x								F	
	Crustacea	9	x								F	
	egg with nematode	1	x								F	

SO208 - MUC14: Deep-sea plain
MUC on bottom: UTC 20/07/10 02:09hrs, lat 06°48,28'N, long 92°06,83'W, depth 3639 m
MUC off bottom: UTC 20/07/10 02:10hrs, lat 06°48,28'N, long 92°06,72'W, depth 3640 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	1	x								F	sponge?
	unsorted material										F	
	Porifera	2	x								F	
Meiofauna	Nematoda	420	x								F	
	Copepoda	185	x								F	
	Isopoda	3	x								F	
	Nemertini	4	x								F	
	? worm-like	6	x								F	
	? Komokiacea	15	x								F	
	Tardigrada	48	x								F	
	Polychaeta	51	x								F	
	Ostracoda	46	x								F	
	Plathelminthes	22	x								F	
	eggs	10	x								F	
	Loricifera	20+2?	x								F	
	Kinorhyncha	10	x								F	
	Oligochaeta	2	x								F	
	Bivalvia	2	x								F	
	Acari	9	x								F	
	Collembola	1	x								F	
	?	8	x								F	
	Cumacea	1	x								F	
	Tanaidacea	6	x								F	
	Gastrotricha	2	x								F	
	Sipunculida	3	x								F	

SO208 - DR15: "Spiegelei", flat topped circular seamount with cone-like structure on the Western flank; samples taken along Northern flank
Dredge on bottom: UTC 20/07/10 12:20hrs, lat 06°56,80'N, long 91°28,20'W, depth 3104 m
Dredge off bottom: UTC 20/07/10 13:35hrs, lat 07°56,42'N, long 91°28,24'W, depth 2783 m
gDR, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Foraminifera	3	x								F	
	Foraminifera	>5			x						EtOH	encrusting formas on Mn-crust
	Porifera	1	x								EtOH	single hexactinellid on matrix (Mn-crust)
	Porifera	1	x								EtOH	hexactinellid on Mn-crust
	Porifera	3	x								EtOH	hexactinellids
	Porifera	2	x								EtOH	hexactinellids
	Cnidaria	1	x								EtOH	Actiniaria on Mn-crust
	Cnidaria	1	x								EtOH	Gorgonaria, stick-like with single polyps
	Cnidaria	2	x								EtOH	Coronata
	Mollusca	1			x						EtOH	patellid with cone-shaped, haired shell, 2 cm
	Polychaeta	5	x								EtOH	2 different species, 1 with coiled calcite tube
	Polychaeta	1	x								EtOH	terebellid?
	Polychaeta?	1	x								EtOH	branched tube
	Crustacea	1			x						F	Cirripedia (Entenmuschel) damaged
	Brachiopoda	1	x								EtOH	*Melvicalathis* , pieces, lophophore separate
	Brachiopoda	1	x								EtOH	*Platidia*
	Brachiopoda?	2	x								EtOH	with 'punctae', almost certainly forams
	Bryozoa	3	x								EtOH	2 diff. species, 1 trunk-like, 1 encrusting branches
	Bryozoa	1	x								EtOH	1 tree-like cyclostome?
	Bryozoa	1	x								EtOH	1 tree-like, greenish cyclostome
	Bryozoa	3	x								EtOH	massive colonies on matrix
	Bryozoa	2	x								EtOH	branched colonies
Meiofauna	Nematoda	19	x								F	
	Copepoda	16	x								F	
	Appendicularia	2	x								F	
	Plathelminthes	1	x								F	
	Kinorhyncha	1	x								F	
	Loricifera	1	x								F	
	Tanaidacea	1	x								F	
	Ostracoda	2	x								F	

SO208 - DR16: "Looser", Northeastern slope of large gently sloping edifice
Dredge on bottom: UTC 20/07/10 19:46hrs, lat 08°20,63'N, long 91°11,30'W, depth 2591 m
Dredge off bottom: UTC 20/07/10 21:49hrs, lat 08°20,74'N, long 91°10,97'W, depth 2777 m
gDR, no sediment, no macrofauna

SO208 - DR17: "Eye", 25 nm Northeast of "Looser", circular seamount with highest elevation along Western half, top charcterized by several cones in the East, track is along Northern slope where a small depression cuts into the flank
Dredge on bottom: UTC 21/07/10 04:05hrs, lat 08°45,20'N, long 90°43,37'W, depth 2867 m
Dredge off bottom: UTC 21/07/10 05:35hrs, lat 08°44,73'N, long 90°43,54'W, depth 2406 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Macrofauna	Porifera	>3	x								EtOH	hexactinellids
	Porifera	>5	x								EtOH	hexactinellids
	Cnidaria	3	x								EtOH	Coronata
	Mollusca	1	x								EtOH	tiny patellid snail with cone-shaped shell
	Mollusca	1	x								EtOH	Polyplacophora
	Polychaeta	>3	x								EtOH	Sabellidae
	Polychaeta	2	x								EtOH	tentacles of terebellid?
	Polychaeta	2	x								EtOH	two incomplete specimens
	Polychaeta	1	x								EtOH	Arenicolidae?
	Polychaeta	3	x								EtOH	Terebellidae?
	Polychaeta	>5		x							EtOH	Maldanidae in tubes
	Polychaeta	1	x								EtOH	tubes
	Brachiopoda	1	x								EtOH	*Platidia*
	Brachiopoda	1	x								EtOH	*Amphithyris* ?
	Brachiopoda	1	x								EtOH	*Melvicalathis*
	Bryozoa	1	x								EtOH	branched colony
	Bryozoa	2	x								EtOH	massive, trunk-like colony
Meiofauna	Nematoda	79	x								F	
	Copepoda	40	x								F	
	Ostracoda	5	x								F	
	Tardigrada	3	x								F	
	Polychaeta	7	x								F	
	Tanaidacea	2	x								F	
	? worm-like	1	x								F	

SO208 - DR18: "knob" ca 30 nm South-South-East of DR17 "Eye"; Northeastern flank at lower section
Dredge on bottom: UTC 21/07/10 11:31hrs, lat 08°34,79'N, long 90°16,61'W, depth 3227 m
Dredge off bottom: UTC 21/07/10 12: hrs, lat 08°34,61'N, long 90°16,80'W, depth 2850 m
gDR, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	1			x						F	hexactinellid
	Polychaeta	>5	x								EtOH	tubes
	Polychaeta	1	x								F	from sediment tube
Meiofauna	Nematoda	77	x								F	
	Copepoda	44	x								F	
	Cumacea	1	x								F	
	Ostracoda	7	x								F	
	Bivalvia	2	x								F	
	? Komokiacea	4	x								F	
	Tanaidacea	4	x								F	
	Sipunculida	3	x								F	
	Polychaeta	9	x								F	
	Plathelminthes	2	x								F	
	? worm-like	2	x								F	
	Kinorhyncha	1	x								F	

SO208 - MUC19: Top of seamount
MUC on bottom: UTC 21/07/10 18:02hrs, lat 08°43,31'N, long 90°44,14'W, depth 2426 m
MUC off bottom: UTC 21/07/10 18:04hrs, lat 08°43,31'N, long 90°44,14'W, depth 2426 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Meiofauna	Nematoda	489	x								F	
	Copepoda	320	x								F	
	Sipunculida	1	x								F	
	Cumacea	2	x								F	
	Polychaeta	66	x								F	
	Plathelminthes	34	x								F	
	Isopoda	3	x								F	
	Ostracoda	15	x								F	
	Tardigrada	71	x								F	
	Kinorhyncha	41	x								F	
	Loricifera	9+1?	x								F	
	Gastrotricha	9	x								F	
	Tanaidacea	1	x								F	
	Amphipoda	1	x								F	

SO208 - MUC20: Abyssal plain
MUC on bottom: UTC 21/07/10 20:43hrs, lat 08°46,60'N, long 90°38,45'W, depth 3513 m
MUC off bottom: UTC 21/07/10 20:44hrs, lat 08°46,61'N, long 90°38,45'W, depth 3487 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Polychaeta	1								15ml	F	from large mucus-lined sediment tube
Meiofauna	Nematoda	510	x								F	
	Copepoda	296	x								F	
	Ostracoda	87	x								F	
	Kinorhyncha	20	x								F	
	?	1	x								F	
	Polychaeta	35	x								F	
	Plathelminthes	13	x								F	
	Amphipoda	2	x								F	
	Isopoda	4	x								F	
	Priapulida	1	x								F	
	Loricifera	3	x								F	
	Tanaidacea	2	x								F	
	Sipunculida	1	x								F	
	? Komokiacea	9	x								F	
	Bivalvia	5	x								F	
	Aplacophora	1	x								F	

SO208 - DR21: "Pickel", Northeast-Southwest striking volcanic (?) ridge with numerous cones. "Pickel" lies at the Southeastern termination of the ridge
Dredge on bottom: UTC 22/07/10 06:22hrs, lat 09°37,86'N, long 89°50,65'W, depth 3329 m
Dredge off bottom: UTC 22/07/10 07:42hrs, lat 09°37,53'N, long 89°50,96'W, depth 3029 m
gDR, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Foraminifera	3	x								F	
	Porifera	2	x								EtOH	hexactinellids
	Porifera	1	x								EtOH	hexactinellid
	Porifera	1	x								EtOH	hexactinellid, stick-like
	Porifera	1	x								EtOH	hexactinellid
	Porifera	1	x								EtOH	flask-shaped hexactinellid
	Porifera	1	x								EtOH	several pieces of one demosponge?
	Porifera	2	x								EtOH	hexactinellids
	Porifera	1	x								EtOH	hexactinellid
	Porifera	1	x								EtOH	hexactinellid
	Porifera	3	x								EtOH	hexactinellids
	Porifera	1	x								EtOH	hexactinellid with long spicules, encrusting
	Porifera	>5								15ml	EtOH	hexactinellid
	Porifera	1	x								F	stulked
	Cnidaria	3	x								EtOH	hydrozoans from ship hull
	Cnidaria	3								15ml	EtOH	Gorgonaria, tree-like with single polyps
	Cnidaria	1	x								EtOH	Gorgonaria, tree-like with single polyps
	Cnidaria	3			x						EtOH	Gorgonaria, tree-like with single polyps
	Cnidaria	1	x								EtOH	Actiniaria
	Plathelminthes?	1								15ml	EtOH	possibly from ship hull
	Mollusca	1	x								EtOH	Polyplacophora
	Polychaeta	2	x								EtOH	terebellids?
	Polychaeta	1	x								EtOH	covered with brownish papillae, ca. 3 cm long
	Polychaeta	3	x								EtOH	Sabellidae
	Polychaeta	>5	x								EtOH	tubes
	Polychaeta	>3	x								EtOH	
	Polychaeta	>3	x								EtOH	different species
	Brachiopoda	1	x								EtOH	Rhynchonellida, very small
	Brachiopoda	1	x								EtOH	*Platidia*
	Brachiopoda	1	x								EtOH	*Platidia*
	Bryozoa	>3	x								EtOH	branched, rather massive colonies
	Bryozoa	>3	x								EtOH	trunk-like cyclostomes
	Bryozoa	1	x								EtOH	tree-like colony
	Bryozoa	>3	x								EtOH	branched, upright, with long stalks
	Bryozoa	>5	x								EtOH	trunk-like cyclostomes, possibly others
	Bryozoa	1	x								EtOH	upright colony
	Bryozoa	>3	x								EtOH	different colonies
Meiofauna	Nematoda	13	x								F	
	Copepoda	11	x								F	
	Cnidaria (Medusa)	1	x								F	
	Komokiacea	2	x								F	
	Polychaeta	3	x								F	
	Ostracoda	1	x								F	

SO208 - TVG22: Top of seamount "Pickel"
TVG on bottom: UTC 22/07/10 19:01hrs, lat 10°35,45'N, long 88°49,99'W, depth 2634 m
TVG off bottom: UTC 22/07/10 19:32hrs, lat 10°35,59'N, long 88°50,17'W, depth 2708 m
TVG, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	1	x								EtOH	hexactinellid
	Porifera	1	x								EtOH	hexactinellid
	Polychaeta	1			x						EtOH	*Amphitrite* -like, about 10 cm long, in mud-tube
	Polychaeta	2								15ml	EtOH	Maldanidae
	Polychaeta	>5	x								EtOH	tubes
	Brachiopoda	4	x								EtOH	*Pelagodiscus atlanticus*
	Bryozoa	2	x								EtOH	two different encrusting colonies
	Echinodermata	1	x								EtOH	Crinoidea? Very small on long stalk

SO208 - DR23: "Bend fault Seamount"; seamount cut by several Northwest-Southeast striking band faults, track along scarp at Northwestern cone of seamount

Dredge on bottom: UTC 23/07/10 03:01hrs, lat 10°46,19'N, long 87°53,51'W, depth 1838 m

Dredge off bottom: UTC 23/07/10 03:57hrs, lat 10°45,91'N, long 87°53,75'W, depth 1735 m

gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	2	x								F	
	Foraminifera	3	x								F	from sediment tube
	Porifera/Foraminifera?	>5	x								EtOH	cone-shaped skeleton with finger-like tip
	Porifera?	>5	x								EtOH	cone-shaped skeleton with finger-like tip
	Porifera	1	x								EtOH	*Asbestopluma* ?
	Porifera	3	x								EtOH	hexactinellids
	Porifera	>3	x								EtOH	hexactinellids
	Porifera	1	x								EtOH	hexactinellid
	Porifera	1	x								EtOH	hexactinellid?
	Porifera	2	x								EtOH	branched hexacs, one with larvae?
	Cnidaria	1	x								EtOH	Actiniaria
	Cnidaria	1								2000	F	Gorgonaria (together with ophiuroid), 3 pieces
	Cnidaria	>3			x						EtOH	Gorgonaria (parts of previous specimen)
	Cnidaria	2	x								EtOH	Coronata
	Cnidaria	>3	x								EtOH	Coronata
	Mollusca	1								15ml	EtOH	Polyplacophora, from ship hull?
	Mollusca	1	x								EtOH	Monoplacophora (!!!), Micropilina?
	Mollusca	2	x								F	Bivalvia, 2 species, from sediment tube
	Echiurida?	1	x								EtOH	possibly a sipunculid?
	Polychaeta	>5	x								EtOH	tubes
	Polychaeta	1	x								EtOH	
	Crustacea	1	x								EtOH	Amphipoda, from ship hull?
	Brachiopoda	3	x								EtOH	*Eucalathis* sp.
	Brachiopoda	1	x								EtOH	*Eucalathis* sp.
	Brachiopoda	4	x								EtOH	*Melvicalathis* ?
	Brachiopoda	1	x								EtOH	*Pelagodiscus atlanticus*
	Brachiopoda	7	x								EtOH	*Platidia*
	Echinodermata	1								2000	F	Ophiuroidea (together with gorgonian coral)
	Echinodermata	1								15ml	EtOH	Ophiuroidea
	Echinodermata	1								15ml	EtOH	Holothurioidea
	"Pisces"	1	x								F	egg
Meiofauna	Nematoda	110	x								F	
	Copepoda	41	x								F	
	Polychaeta	21	x								F	
	Bivalvia	1	x								F	
	Ostracoda	6	x								F	
	Isopoda	1	x								F	
	? worm-like	15	x								F	
	Loricifera	1	x								F	
	Plathelminthes	2	x								F	
	Aplacophora	1	x								F	

SO208 - DR24: "Bend fault Seamount", 1,5 nm Southeast of DR23 at top of seamount along its Northeastern slope

Dredge on bottom: UTC 23/07/10 05:45hrs, lat 10°45,41'N, long 87°52,42'W, depth 1702 m

Dredge off botto UTC 23/07/10 08:13hrs, lat 10°45,40'N, long 87°52,39'W, depth 1730?m

gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	>3	x								EtOH	hexactinellids
	Porifera	1				x					EtOH	hexactinellid with epizoans
	Cnidaria	1			x						EtOH	hexacorallia
	Cnidaria	>5	x								EtOH	Coronata
	Polychaeta	>3	x								EtOH	tubes
	Polychaeta	>3	x								EtOH	tubes, different species
	Crustacea	2	x								EtOH	Isopoda, *Gnathia* sp. _ + _ with eggs
	Brachiopoda	3	x								EtOH	*Platidia* , one specimen with larvae
	Brachiopoda	1	x								EtOH	*Platidia* , with larvae
	Brachiopoda	4	x								EtOH	*Eucalathis, Melvicalathis*
	Echinodermata	1	x								EtOH	Holothuroidea
	Tunicata	>3	x								EtOH	salps, fished with dredge
	Chondrichtyes	1							x		F	egg

SO208 - DR25: "Bend fault Seamount", base of seamount along its Northeastern flank, 2,5 nm Northeast of DR24
Dredge on bottom: UTC 23/07/10 10:20hrs, lat 10°47,46'N, long 87°50,46'W, depth 2574 m
Dredge off bottom: UTC 23/07/10 11:40hrs, lat 10°47,16'N, long 87°50,79'W, depth 2220 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	1	x								EtOH	hexactinellid
	Monoplacophora	1	x								EtOH	Micropilina?, complete specimen
	Polychaeta	1	x								EtOH	Sabellariidae, with two "horns"
	Poychaeta	1								15ml	EtOH	Maldanidae?
	Polychaeta	1	x								F	from sediment tube
Meiofauna	Nematoda	59	x								F	
	Copepoda	14	x								F	
	Polychaeta	6	x								F	
	Ostracoda	4	x								F	
	Tanaidacea	2	x								F	
	Isopoda	1	x								F	
	Priapulida	1	x								F	
	Gastrotricha	1	x								F	
	? worm-like	3	x								F	

SO208 - DR26: "Little Bend Seamount"; 9 nm Southeast of "Bend fault Seamount I", small round structure, Northwest facing slope
Dredge on bottom: UTC 23/07/10 14:52hrs, lat 10°41,12'N, long 87°45,52'W, depth 2995 m
Dredge off bottom: UTC 23/07/10 15:40hrs, lat 10°40,91'N, long 87°45,28'W, depth 2680 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Polychaeta	>3	x								EtOH	Sabellidae
Meiofauna	Nematoda	16	x								F	
	Copepoda	16	x								F	
	Polychaeta	5	x								F	
	Kinorhyncha	4	x								F	
	Ostracoda	1	x								F	
	Plathelminthes	1	x								F	

SO208 - MUC27: Continental shelf
MUC on bottom: UTC 23/07/10 23:21hrs, lat 11°24,92'N, long 86°51,99'W, depth 132 m
MUC off bottom: UTC 23/07/10 23:23hrs, lat 11°24,92'N, long 86°51,99'W, depth 132 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	1	x								F	
	Porifera + Cnidaria	1								15	EtOH	Coronata on a Porifera
	Mollusca	3								15ml	F	dry shells
	Mollusca	1	x								F	Bivalvia
	Polychaeta????	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	5	x								F	damged parts of different species
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	3	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								EtOH	Cirratulidae
	Crustacea	1	x								F	
	"Pisces"	1	x								F	small tooth

SO208 - MUC28: Continental shelf
MUC on bottom: UTC 24/07/10 02:01hrs, lat 11°08,94'N, long 86°33,93'W, depth 162 m
MUC off bottom: UTC 24/07/10 02:01hrs, lat 11°08,94'N, long 86°33,93'W, depth 162 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Cnidaria	1								15ml	F	Pennatulacea
	Mollusca	1	x								F	Scaphopoda
	Mollusca	2	x								F	Bivalvia
	Mollusca	3			x						F	Bivalvia
	Polychaeta	1	x								EtOH	Spionidae?
	Polychaeta	1	x								F	Nereidae?
	Polychaeta	1								15ml	F	
	Polychaeta	4		x							F	tubes
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Crustacea	2	x								EtOH	Decapoda, Natantia
	Crustacea	1	x								F	Decapoda, Natantia
	Echinodermata	1	x								EtOH	Asteroida, arm tip
	Echinodermata	1				x					F	Asteroida, (arm tip in EtOH)

SO208 - DR29: "Schrippe"; base of Northwestern flank cut by Northwest-Southeast striking bend fault
Dredge on bottom: UTC 24/07/10 09:12hrs, lat 10°25,45'N, long 87°14,65'W, depth 3400 m
Dredge off bottom: UTC 24/07/10 10:05hrs, lat 10°25,15'N, long 87°14,80'W, depth 3109 m
gDR, sediment, no macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Meiofauna	Nematoda	11	x								F	
	Copepoda	5	x								F	

SO208 - DR30: "Schrippe"; 800 m upslope of DR29 at steeper slope
Dredge on bottom: UTC 24/07/10 12:19hrs, lat 10°24,61'N, long 87°14,79'W, depth 2848 m
Dredge off bottom: UTC 24/07/10 13:49hrs, lat 10°24,23'N, long 87°15,10'W, depth 2400 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	1	x								F	
	unsorted material	1	x								F	
	Porifera	1	x								EtOH	hexactinellid
	Polychaeta	1	x								EtOH	Sabellidae
	Polychaeta	1	x								EtOH	sabellid? tube
	Polychaeta	2	x								EtOH	Sabellidae?
	Polychaeta	2	x								EtOH	
	Brachiopoda	4	x								EtOH	*Pelagodiscus atlanticus*
	Brachiopoda	1	x								EtOH	*Eucalathis*
	Brachiopoda	2	x								EtOH	*Platidia*
	Tunicata	1	x								EtOH	salp with bright pink spots
	Tunicata	1							x		EtOH	salp with bright pink spots
	Tunicata	1								2000	F	salp with brigth pink spots
Meiofauna	Nematoda	100	x								F	
	Copepoda	19	x								F	
	Plathelminthes	2	x								F	
	Hydrozoa	4	x								F	
	Ostracoda	2	x								F	
	Loricifera	2	x								F	
	Polychaeta	2	x								F	
	? worm-like	1	x								F	

SO208 - DR31: "Ammonit"; seamount 30 nm South of DR30, circular shaped seamount, dredge on Northeast facing slope
Dredge on bottom: UTC 24/07/10 19:47hrs, lat 09°54,17'N, long 87°16,08'W, depth 3038 m
Dredge off bottom: UTC 24/07/10 21:10hrs, lat 09°53,97'N, long 87°16,50'W, depth 2584 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Polychaeta	2	x								EtOH	
	Polychaeta	1	x								EtOH	Maldanidae?
	Mollusca	1	x								EtOH	Bivalvia
	Bryozoa	2	x								EtOH	two branched colonies
	Brachiopoda	3	x								EtOH	*Eucalathis sp.*
	Brachiopoda ?	1	x								F	
	"Pisces"	1			x						dry	shark tooth
Meiofauna	Nematoda	62	x								F	
	Copepoda	38	x								F	
	Tanaidacea	2	x								F	
	Loricifera	2	x								F	
	Polychaeta	2	x								F	
	Sipunculida	1	x								F	
	Ostracoda	1	x								F	

SO208 - DR32: "Guardian Seamount", seamount 25 nm South-West-South of DR31, Northwestern flank below flat top area, Southern part of top area occupied by cone

Dredge on bottom: UTC 25/07/10 03:00hrs, lat 9°38,46'N, long 87°40,50'W, depth 2640 m

Dredge off bottom: UTC 25/07/10 04:19hrs, lat 9°38,11'N, long 87°40,23'W, depth 2095 m

gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	3	x								EtOH	hexactinellids
	Porifera	1			x						EtOH	hexactinellid
	Porifera	2	x								EtOH	hexactinellid
	Porifera	3	x								EtOH	hexactinellid
	Porifera	>3	x								EtOH	Demospongia
	Porifera	1	x								EtOH	*Asbestopluma* ?
	Cnidaria	1	x								EtOH	Actiniaria
	Cnidaria	1	x								EtOH	Actiniaria
	Cnidaria	1	x								EtOH	Coronata
	Cnidaria	1						x			F	Gorgonaria
	Cnidaria	1		x							EtOH	Gorgonaria
	Polychaeta	2	x								EtOH	Sabellidae
	Polychaeta	>5	x								EtOH	different species
	Crustacea	1	x								EtOH	Isopoda
	Crustacea	1	x								EtOH	Cirripedia, Verrucomorpha
	Brachiopoda	1			x						F	on a stone (from sediment tubes)
	Brachiopoda	3	x								EtOH	*Eucalathis* sp.
	Bryozoa	1	x								EtOH	Cyclostomata
	Bryozoa	>3	x								EtOH	different species
Meiofauna	Nematoda	62	x								F	
	Copepoda	39	x								F	
	Ostracoda	8	x								F	
	Sipunculida	1	x								F	
	Polychaeta	10	x								F	
	Tanaidacea	2	x								F	
	Plathelminthes	4	x								F	
	? worm-like	1	x								F	
	Loricifera	2	x								F	
	Kinorhyncha	1	x								F	
	Gastropoda	1	x								F	
	Tardigrada	2	x								F	

SO208 - DR33: "Kringel", 20 nm Southwest of DR32; seamount with horseshoe shaped crater open to the South, track along Northern flank

Dredge on bottom: UTC 25/07/10 09:23hrs, lat 09°24,45'N, long 87°50,42'W, depth 2716 m

Dredge off bottom: UTC 25/07/10 11:13hrs, lat 09°24,34'N, long 87°50,38'W, depth 2576 m

gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	1	x								EtOH	hexactinellid
	Cnidaria	1	x								EtOH	Gorgonaria
	Crustacea	1	x								EtOH	Isopoda
	Bryozoa	3	x								EtOH	different species
Meiofauna	Nematoda	62	x								F	
	Copepoda	30	x								F	
	Tanaidacea	2	x								F	
	? worm-like	1	x								F	
	Polychaeta	5	x								F	
	Plathelminthes	4	x								F	
	Ostracoda	4	x								F	
	Amphipoda	1	x								F	

SO208 - MUC34: "Bagel", seamount with central crater-like depression
MUC on bottom: UTC 25/07/10 16:17hrs, lat 09°07,51'N, long 87°26,51'W, depth 2625 m
MUC off bottom: UTC 25/07/10 16:18hrs, lat 09°07,51'N, long 87°26,51'W, depth 2625 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x							
	Porifera	1	x								EtOH	hexactinellid
	Porifera	1		x							EtOH	large silica spicule, *Monoraphis* ?
	Porifera	1	x								F	Porifera on worm tube
	Porifera	1	x								F	
	Cnidaria	1	x								F	
	Cnidaria	3	x								F	Coronata
	Mollusca	3	x								F	Gastropoda
	Polychaeta	1	x								F	in its tube
	Polychaeta	1	x								F	
	Polychaeta	1	x								EtOH	Sabellariidae
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	2 pieces of a polychaete
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								F	
	Polychaeta	1	x								EtOH	Arenicolidae? with papillae
	Sipunculida	1	x								F	
	Crustacea	1	x								F	
	Crustacea	1	x								F	
	Bryozoa	1	x								F	
	Brachiopoda	1	x								EtOH	*Pelagodiscus atlanticus*
	Bryozoa	1	x								EtOH	club-like colony
	Bryozoa	1	x								EtOH	tree-like colony
	"Pisces"	>10			x						F	shark teeth
Meiofauna	Nematoda	586	x								F	
	Copepoda	388	x								F	
	? worm-like	21	x								F	
	Tanaidacea	8	x								F	
	Amphipoda	3	x								F	
	Plathelminthes	14	x								F	
	Chaetognatha	1	x								F	
	Polychaeta	102	x								F	
	Kinorhyncha	2	x								F	
	Priapulida	18	x								F	
	Loricifera	5	x								F	
	Ostracoda	32	x								F	
	Tardigrada	7	x								F	
	Cumacea	1	x								F	
	Isopoda	11	x								F	
	? Komokiacea	10	x								F	
	Aplacophora	1	x								F	
	Bivlavia	1	x								F	

SO208 - MUC35: 3 nm East of seamount "Bagel", deep-sea plain
MUC on bottom: UTC 25/07/10 19:00hrs, lat 09°07,50'N, long 87°23,74'W, depth 3151 m
MUC off bottom: UTC 25/07/10 19:02hrs, lat 09°07,50'N, long 87°23,74'W, depth 3151 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Polychaeta	1	x								EtOH	Amphinomidae?
	Polychaeta	1	x								EtOH	tube
	Echinodermata	1	x								EtOH	one arm

SO208 - DR36: "Bagel" seamount, Northeastern flank of a cratered seamount
Dredge on bottom: UTC 25/05/10 21:30hrs, lat 09°08,59'N, long 87°25,41'W, depth 2882 m
Dredge off bottom: UTC 25/05/10 22:58hrs, lat 09°08,56'N, long 87°25,51'W, depth 2795 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	1	x								EtOH	hexactinellid
	Porifera	>3	x								EtOH	
	Porifera	>5	x								EtOH	hexactinellid
	Porifera	2	x								EtOH	hexactinellid
	Porifera	>3	x								EtOH	hexactinellid
	Porifera	1								15	F	
	Porifera	>5	x								EtOH	hexactinellid
	Porifera	1	x								EtOH	hexactinellid
	Porifera	1	x								EtOH	lithistid?
	Porifera	2	x								EtOH	hexactinellids?
	Mollusca	1	x								EtOH	Monoplacophora, *Micropilina* ?
	Polychaeta	1	x								EtOH	head part of a large nereid?
	Crustacea	1	x								EtOH	Amphipoda
	Bryozoa	>5	x								EtOH	
	Bryozoa	2	x								EtOH	branched colonies
	Bryozoa	>5	x								EtOH	cyclostomes?
	Bryozoa	1	x								EtOH	branched colony
	Brachiopoda	1	x								EtOH	*Bathynanus* ?
	Brachiopoda	1	x								EtOH	*Platidia*
	Brachiopoda	2	x								EtOH	*Melvicalathis?*
	"Pisces"	1	x								dry	shark tooth
Meiofauna	Nematoda	56	x								F	
	Copepoda	25	x								F	
	Polychaeta	8	x								F	
	Tanaidacea	1	x								F	
	Ostracoda	2	x								F	

SO208 - DR37: "Ojo" seamount, Northeastern flank
Dredge on bottom: UTC 26/07/10 03:01hrs, lat 09°22,22'N, long 87°14,73'W, depth 2654 m
Dredge off bottom:UTC 26/07/10 04:05hrs, lat 09°22,36'N, long 87°14,99'W, depth 2339 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	2	x								F	
	Porifera	3	x								EtOH	hexactinellids
	Porifera	1	x								F	
	Polychaeta	1	x								F	in ist tube
	Polychaeta	1	x								EtOH	Maldanidae?
	Bryozoa	>3	x								EtOH	more than 3 species
	"Pisces"	2	x								EtOH	shark teeth
Meiofauna	Nematoda	82	x								F	
	Copepoda	54	x								F	
	Polychaeta	14	x								F	
	Bivalvia	1	x								F	
	Sipunculida	1	x								F	
	Tardigarda	9	x								F	
	Cumacea	1	x								F	
	Ostracoda	4	x								F	
	Isopoda	1	x								F	
	Tanaidacea	2	x								F	

SO208 - DR38 "Zecke", about 12 nm North-North-East of DR37; oval shaped seamount with smooth flanks, dredge along Northern side
Dredge on bottom: UTC 26/07/10 08:03hrs, lat 09°26,70'N, long 87°04,59'W, depth 3002 m
Dredge off bottom: UTC 26/07/10 08:03hrs, lat 09°26,70'N, long 87°04,59'W, depth 3002 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Mollusca	1	x								F	Bivalvia
	Polychaeta	1	x								EtOH	
	Polychaeta	1	x								F	in its tube
	Polychaeta	1	x								F	in its tube
Meiofauna	Nematoda	37	x								F	
	Copepoda	33	x								F	
	Polychaeta	3	x								F	
	Plathelminthes	3	x								F	
	Ostracoda	5	x								F	
	? Komokiacea	1	x								F	
	Loricifera	1	x								F	
	Chaetognatha	1	x								F	
	Tardigrada	1	x								F	

SO208 - DR39: "Hoob" seamount, small caldera at Eastern flank, caldera has open Eastern flank, track along Southern ridge of caldera
Dredge on bottom: UTC 26/07/10 13:15hrs, lat 09°08,28'N, long 86°56,17'W, depth 2330 m
Dredge off bottom:UTC 26/07/10 14:35hrs, lat 09°07,87'N, long 86°56,36'W, depth 1917 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	1	x								EtOH	hexactinellid
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	2	x								EtOH	hexactinellid
	Cnidaria	1	x								EtOH	Coronata
	Cnidaria	2	x								EtOH	Actiniaria
	Cnidaria	1	x								EtOH	Gorgonaria, piece of large colony
	Cnidaria	>3								5000	F	Gorgonaria
	Cnidaria	4	x								EtOH	Gorgonaria, pieces of large colony
	Cnidaria/Tunicata	1	x								EtOH	
	Polychaeta	1	x								EtOH	Sabellariidae
	Polychaeta	>5	x								EtOH	tubes
	Polychaeta	>3	x								EtOH	tubes
	Bryozoa	>3	x								EtOH	cyclostomes
	Bryozoa	>3	x								EtOH	
	Tunicata	1	x								EtOH	

SO208 - DR40: "The hill", seamount 1,8 nm Northeast of DR39 on a small separate hill/cone, Northeast-facing flank
Dredge on bottom:UTC 26/07/10 16:57hrs, lat 09°09,24'N, long 86°55,11'W, depth 2954 m
Dredge off bottom: UTC 26/07/10 18:09hrs, lat 09°09,22'N, long 86°55,24'W, depth 2874 m
gDr, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	1	x								F	
	Porifera	1	x								F	
Meiofauna	Nematoda	87	x								F	
	Copepoda	30	x								F	
	Tardigrada	1	x								F	
	Decapoda	1	x								F	
	Ostracoda	2	x								F	
	Tanaidacea	1	x								F	
	Polychaeta	3	x								F	

SO208 - MUC41: Deep-sea plain
Dredge on bottom: UTC 26/07/10 20:44hrs, lat 09°09,65'N, long 86°52,33'W, depth 3118 m
Dredge off bottom: UTC 26/07/10 20:45hrs, lat 09°09,65'N, long 86°52,33'W, depth 3113 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Cnidaria	1								15ml	EtOH	
	Polychaeta	1					x				F	Opheliidae

SO208 - MUC42: Ocean floor, ocean floor North of Western GSC, East-West striking ridge, station located in small valley/basin
Dredge on bottom: UTC 05/08/10 12:22hrs, lat 02°19,81'N, long 91°19,05'W, depth 2418 m
Dredge off bottom: UTC 05/08/10 12:19hrs, lat 02°19,81'N, long 91°19,05'W, depth 2418 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	3	x								EtOH	
	unsorted material	2	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1			x						F	
	Cnidaria	1				x					EtOH	smaller part of a large medusa
	Cnidaria	1								2000	F	part of a large medusa
	Polychaeta	1	x								F	***
	Polychaeta	2				x					EtOH	worm tubes
	Crusteacea?	1	x								EtOH	
	Crustacea	1	x								F	
	Crustacea	1	x								F	
	Crustacea	1	x								EtOH	
	"Pisces"	1	x								EtOH	egg

SO208 - TVG 43: West Galápagos Spreading Centre, North of centre of ridge
Dredge on bottom: UTC 05/08/10 21:00hrs, lat 02°06,64'N, long 91°56,65'W, depth 1675 m
Dredge off bottom: UTC 05/08/10 22:06hrs, lat 02°06,84'N, long 91°56,91'W, depth 1682 m
TVG, no sediment, no macrofauna

SO208 - DR44: Seamount on top of Galápagos Spreading Centre, Northeast-facing slope of irregular shape, ca. 50 m high seamount
Dredge on bottom: UTC 05/08/10 23:45hrs, lat 02°06,64'N, long 91°56,80'W, depth 1681 m
Dredge off bottom :UTC 06/08/10 00:15hrs, lat 02°06,53'N, long 91°56,96'W, depth 1597 m
gDr, no sediment,no macrofauna

SO208 - DR45: Seamount on top of GSC, 200 m East of DR44, prominent spurr, facing Northeast
Dredge on bottom: UTC 06/08/10 01:38hrs, lat 02°06,48'N, long 91°56,78'W, depth 1621 m
Dredge off bottom: UTC 06/08/10 02:13hrs, lat 02°06,29'N, long 91°56,94'W, depth 1622 m
gDr, no sediment, macrofauna

SO208 - DR46: Ridge Northeast of DR45, 1,5 nm away, Northeast-facing slope
Dredge on bottom: UTC 06/08/10 04:09hrs, lat 02°07,35'N, long 91°55,99'W, depth 1844 m
Dredge off bottom: UTC 06/08/10 04:48hrs, lat 02°07,04'N, long 91°56,10'W, depth 1785 m
gDr, no sediment, no macrofauna

SO208 - DR47: 1,5 nm Northeast of DR46, North-facing slope of East-West striking ridge
Dredge on bottom: UTC 06/08/10 06:41hrs, lat 02°07,69'N, long 91°57,12'W, depth 1848 m
Dredge off bottom: UTC 06/08/10 07:15hrs, lat 02°07,48'N, long 91°57,16'W, depth 1810 m
gDr, no sediment,no macrofauna

SO208 - DR48: 2nd ridge North of GSC, North-facing slope
Dredge on bottom: UTC 06/08/10 09:08hrs, lat 02°08,68'N, long 91°56,91'W, depth 2099 m
Dredge off bottom: UTC 06/08/10 10:27hrs, lat 02°08,22'N, long 91°57,06'W, depth 1869 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	3	x								EtOH	
	Polychaeta	1	x								EtOH	

SO208 - DR49: Location "E", 3 nm West of DR 48, second location at ridge two North of GSC, Easternmost location, North-facing slope
Dredge on bottom: UTC 06/08/10 13:08hrs, lat 02°08,07'N, long 91°53,72'W, depth 1978 m
Dredge off bottom: UTC 06/08/10 14:18hrs, lat 02°07,65'N, long 91°53,82'W, depth 1835 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	4	x								EtOH	
	Porifera	3	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	

SO208 - DR50: Location "F", North of GSC, 2 nm Northeast of DR49, ridge further North of GSC (ca. 7 nm)
Dredge on bottom: UTC 06/08/10 16:18hrs, lat 02°09,51'N, long 91°54,16'W, depth 2125 m
Dredge off bottom: UTC 06/08/10 16:56hrs, lat 02°09,12'N, long 91°54,18'W, depth 2113 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	4	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	2	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Cnidaria ?	3	x								EtOH	
	Mollusca	1	x								EtOH	Bivalvia
	Bryozoa	1	x								EtOH	
	Bryozoa	1	x								EtOH	

SO208 - DR51: Location "G", North of GSC, 1 nm West of DR50 along the same "ridge"
Dredge on bottom: UTC 06/08/10 18:41hrs, lat 02°09,83'N, long 91°54,81'W, depth 2123 m
Dredge off bottom: UTC 06/08/10 19:28hrs, lat 02°09,42'N, long 91°54,71'W, depth 2099 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	1	x									
	Porifera	2	x								EtOH	
	Porifera	1	x									
	Porifera	2	x									
	Porifera ?	1	x									
	Porifera	1	x									
	Porifera	2	x									
	Cnidaria	1	x								EtOH	Coronata
	Brachiopoda	1	x								EtOH	totally damaged

SO208 - DR52: North of GSC, 3 nm North of DR 51, steep slope
Dredge on bottom: UTC 06/08/10 21:35hrs, lat 02°12,23'N, long 91°53,96'W, depth 2281 m
Dredge off bottom: UTC 06/08/10 22:22hrs, lat 02°11,87'N, long 91°54,11'W, depth 2150 m
gDr, no sediment, no macrofauna

SO208 - DR53: North of GSC, 1/2 nm East of DR52 along same scarp
Dredge on bottom: UTC 07/08/10 00:23hrs, lat 02°12,55'N, long 91°53,55'W, depth 2442 m
Dredge off bottom: UTC 07/08/10 01:27hrs, lat 02°12,18'N, long 91°53,70'W, depth 2266 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	2	x								EtOH	
	Porifera	1	x								EtOH	
	Bryozoa	1	x								EtOH	

SO208 - DR54: North of GSC, 1 nm South of DR53, quite flat
Dredge on bottom: UTC 07/08/10 03:20hrs, lat 02°11,29'N, long 91°53,75'W, depth 2196 m
Dredge off bottom: UTC 07/08/10 04.07hrs, lat 02°10,91'N, long 91°53,92'W, depth 2179 m
gDr, no sediment, no macrofauna

SO208 - DR55: Ca. 2 nm Southeast of DR54, North of GSC, parallel to GSC striking ridge, North-facing slope
Dredge on bottom:UTC 07/08/10 06:17hrs, lat 02°10,77'N, long 91°53,07'W, depth 2254 m
Dredge off bottom: UTC 07/08/10 07:31hrs, lat 02°10,30'N, long 91°53,12'W, depth 2101 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	2	x								EtOH	
	Porifera	1	x								EtOH	

SO208 - DR56: 1,5 nm West-South-West of DR55, North of DR51, along North-facing slope of small seamount
Dredge on bottom:UTC 07/08/10 09:25hrs, lat 02°10,01'N, long 91°54,47'W, depth 2322 m
Dredge off bottom: UTC 07/08/10 10:26hrs, lat 02°09,67'N, long 91°54,64'W, depth 2171 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	5	x								EtOH	
	Porifera	3	x								EtOH	
	Porifera	2	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Cnidaria?	1	x								EtOH	
	Bryozoa?	1	x								EtOH	

SO208 - DR57: North of GSC, North-facing slope of East-West striking ridge
Dredge on bottom:UTC 07/08/10 12:46hrs, lat 02°12,02'N, long 91°50,49'W, depth 2433 m
Dredge off bottom: UTC 07/08/10 14:13hrs, lat 02°11,54'N, long 91°50,68'W, depth 2144 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	>5	x								EtOH	unsorted Porifera - different species
	Mollusca	1	x								EtOH	Bivalvia
	Bryozoa	1	x								EtOH	
	Bryozoa	2	x								EtOH	

SO208 - DR58: North of GSC, East-West striking ridge, North-facing slope
Dredge on bottom: UTC 07/08/10 17:23hrs, lat 02°10,53'N, long 91°56,59'W, depth 2185 m
Dredge off bottom: UTC 07/08/10 16:36hrs, lat 02°11,03'N, long 91°56,74'W, depth 2170 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10	x								EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera - different species
	Cnidaria	1	x								EtOH	Coronata
	Mollusca	1	x								EtOH	Bivalvia
	Bryozoa	>5	x								EtOH	
	Tunicata ?	1	x								EtOH	Ascidie ?

SO208 - DR59: North of GSC, little "hole"-like structure, Northeast of DR58
Dredge on bottom: UTC 07/08/10 19:28hrs, lat 02°11,83'N, long 91°56,41'W, depth 2234 m
Dredge off bottom: UTC 07/08/10 20:02hrs, lat 02°11,53'N, long 91°56,40'W, depth 2141 m
gDr, no sediment, no macrofauna

SO208 - DR60: North of GSC, 1,5 nm North-North-East of DR59
Dredge on bottom: UTC 07/08/10 22:01hrs, lat 02°12,84'N, long 91°56,36'W, depth 2263 m
Dredge off bottom: UTC 07/08/10 23:37hrs, lat 02°12,09'N, long 91°56,39'W, depth 2155 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	6	x								EtOH	
	Porifera	4	x								EtOH	
	Cnidaria	2	x								EtOH	Coronata
	Bryozoa	2	x								EtOH	

SO208 - DR61: North of GSC, North-facing slope from basin on top of ridge
Dredge on bottom: UTC 08/08/10 07:07hrs, lat 02°16,29'N, long 91°56,08'W, depth 2456 m
Dredge off bottom: UTC 08/08/10 08:28hrs, lat 02°15,80'N, long 91°56,28'W, depth 2273 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	5								15ml	EtOH	
	Porifera	>5	x								EtOH	
	Crustacea	1	x								EtOH	Amphipoda ?

SO208 - DR62: North of GSC, 1 nm Southeast of DR61, Northeastern slope of small, irregular shaped cone
Dredge on bottom: UTC 08/08/10 10:24hrs, lat 02°15,17'N, long 91°55,46'W, depth 2316 m
Dredge off bottom: UTC 08/08/10 11:14hrs, lat 02°14,87'N, long 91°55,60'W, depth 2219 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	3	x								EtOH	
	Porifera	1	x								EtOH	
	Chaetognatha	1	x								EtOH	

SO208 - DR63: "Heiko" seamount, North of GSC, small seamount at Southwestern flank, Westernmost of three East-West aligned off axis (?) seamounts
Dredge on bottom: UTC 08/08/10 13:??hrs, lat 02°18,20'N, long 91°51,92'W, depth 2357 m
Dredge off bottom: UTC 08/08/10 14:28hrs, lat 02°18,53'N, long 91°51,52'W, depth 2159 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>3	x								EtOH	
	Porifera ?	>3	x								EtOH	
	Porifera	1	x								EtOH	

SO208 - DR64: "Heike", North of GSC, 1 nm East of seamount "Heiko"
Dredge on bottom: UTC 08/08/10 16:28hrs, lat 02°18,24'N, long 91°50,72'W, depth 2349 m
Dredge off bottom: UTC 08/08/10 17:07hrs, lat 02°18,53'N, long 91°50,42'W, depth 2177 m
gDr, no sediment, no macrofauna

SO208 - DR65: North of GSC, small East-West striking ridge, 1 nm North of DR64, South-facing flank
Dredge on bottom:UTC 08/08/10 18:55hrs, lat 02°19,69'N, long 91°50,66'W, depth 2408 m
Dredge off bottom: UTC 08/08/10 19:23hrs, lat 02°19,91'N, long 91°50,52'W, depth 2347 m
gDr, no sediment, no macrofauna

SO208 - DR66: North of GSC, East-West striking ridge, with cone-like elevation on top of ridge, South-facing flank, location ca. 55 nm from DR65
Dredge on bottom: UTC 08/08/10 21:44hrs, lat 02°19,13'N, long 91°55,87'W, depth 2448 m
Dredge off bottom: UTC 08/08/10 22:27hrs, lat 02°19,49'N, long 91°55,75'W, depth 2342 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	5	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	>10	x								EtOH	different species
	Crustacea	1	x								EtOH	Amphipoda
	Bryozoa	4	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	

SO208 - DR67: North of GSC, East-West striking fault scarp, Northernmost part of SO208 mapped area, South-facing slope
Dredge on bottom: UTC 09/08/10 03:27hrs, lat 02°24,84'N, long 91°49,85'W, depth 2571 m
Dredge off bottom: UTC 09/08/10 04:19hrs, lat 02°25,18'N, long 91°49,82'W, depth 2370 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	4	x								EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera - different species
	Porifera	1	x								EtOH	
	Cnidaria	4	x								EtOH	Coronata
	Polychaeta	3	x								EtOH	in its tubes
	Polychaeta	1	x								EtOH	in its tube
	Bryozoa	8	x								EtOH	
	Bryozoa	1	x								EtOH	
	Bryozoa	1	x								EtOH	
	Bryozoa	2	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	damaged

SO208 - DR68: North of GSC, 3,4 nm West-South-West of DR67, one ridge further South, Southern flank of ridge
Dredge on bottom: UTC 09/08/10 06:53hrs, lat 02°23,95'N, long 91°53,27'W, depth 2462 m
Dredge off bottom: UTC 09/08/10 07:48hrs, lat 02°24,29'N, long 91°53,11'W, depth 2319 m
gDr, no sediment, no macrofauna

SO208 - DR69: Ridge parallel to GSC, South-facing slope, Northeast of seamount "Elly"
Dredge on bottom: UTC 09/08/10 12:35hrs, lat 02°18,83'N, long 91°42,76'W, depth 2411 m
Dredge off bottom: UTC 09/08/10 13:24hrs, lat 02°19,07'N, long 91°42,47'W, depth 2278 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	>10	x								EtOH	unsorted Porifera - different species
	Cnidaria	1	x								EtOH	Coronata
	Bryozoa	4	x								EtOH	
	Brachiopoda	1	x								EtOH	

SO208 - TVG70: "Elly" seamount, almost on top
TVG on bottom: UTC 09/08/10 15:19hrs, lat 02°17,98'N, long 91°44,17'W, depth 2168 m
TVG off bottom: UTC 09/08/10 16:10hrs, lat 02°17,81'N, long 91°44,35'W, depth 2307 m
TVG, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	>10								2000	EtOH	spines
	Polychaeta	1		x							EtOH	in its tube
Meiofauna	Nematoda	175	x								F	
	Copepoda	42	x								F	
	Tanaidacea	2	x								F	
	Ostracoda	3	x								F	
	Decapoda	1	x								F	
	Kinorhyncha	1+1?	x								F	
	Polychaeta	7	x								F	

SO208 - DR71: "Elly" seamount, Northern flank
Dredge on bottom: UTC 09/08/10 18:44hrs, lat 02°18,33'N, long 91°44,21'W, depth 2377 m
Dredge off bottom: UTC 09/08/10 19:26hrs, lat 02°18,01'N, long 91°44,29'W, depth 2182 m
gDR, no sediment, no macrofauna

SO208 - DR72: North of GSC, basin-like depression, North-facing ridge-flank, 4.5 nm East of seamount "Elly"
Dredge on bottom: UTC 09/08/10 21:41hrs, lat 02°17,15'N, long 91°40,02'W, depth 2475 m
Dredge off bottom: UTC 09/08/10 22:36hrs, lat 02°16,92'N, long 91°40,28'W, depth 2287 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Mollusca	1	x								EtOH	Bivalvia, damaged
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	

SO208 - DR73: North of GSC, East-West striking ridge, along North-facing slope
Dredge on bottom:UTC 10/08/10 03:42hrs, lat 02°27,56'N, long 91°48,73'W, depth 2466m
Dredge off bottom: UTC 10/08/10 04:39hrs, lat 02°27,30'N, long 91°48,88'W, depth 2347m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	3	x								EtOH	
	Porifera	>10	x								EtOH	different species
	Mollusca	1	x								EtOH	Bivalvia
	Bryozoa	2	x								EtOH	
	Brachiopoda	1	x								EtOH	opened, no larvae
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	parts of, totally damaged
	Tunicata ?	1	x								EtOH	Ascidia?

SO208 - DR74: North of GSC, Northernmost ridge mapped thus so far, track along North-facing slope
Dredge on bottom: UTC 10/08/10 07:15hrs, lat 02°32,20'N, long 91°47,76'W, depth 2579 m
Dredge off bottom: UTC 10/08/10 08:40hrs, lat 02°31,67'N, long 91°47,86'W, depth 2405 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	1	x								EtOH	
	Porifera ?	8	x								EtOH	

SO208 - DR75: GSC just Southeast of transform fault; near DR37 of SO158; Caldera-like structure, Southern inner slope
Dredge on bottom: UTC 18/08/10 00:27hrs, lat 00°59,61'N, long 90°36,67'W, depth 1612 m
Dredge off bottom: UTC 18/08/10 01:19hrs, lat 00°59,32'N, long 90°36,84'W, depth 1490 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x						EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Cnidaria	1	x								EtOH	Hydrozoa + Polychaeta
	Mollusca ???	5	x								EtOH	Gastropoda ??
	Polychaeta	1	x								EtOH	
	Bryozoa ?	2	x								EtOH	
	Bryozoa ?	>3	x								EtOH	
	Brachiopoda + ???	1	x								EtOH	on Porifera ???
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda oder Foraminifera ?	1	x								EtOH	???

SO208 - DR76: South of transform fault, Northeast-facing slope of ridge going into small valley
Dredge on bottom: UTC 18/08/10 03:46hrs, lat 01°02,87'N, long 90°42,27'W, depth 1937 m
Dredge off bottom: UTC 18/08/10 04:49hrs, lat 01°02,65'N, long 90°42,52'W, depth 1744 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted matetial	>10	x								EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Porifera	1								15ml	EtOH	
	Polychaeta	1	x								EtOH	
	Polychaeta	1	x								EtOH	
	Polychaeta	1	x								EtOH	
	Polychaeta	1	x								EtOH	
	Bryozoa ?	1	x								EtOH	
	Brachiopoda	1	x								EtOH	

SO208 - DR77: Southern tip of 91° transform fault; split seamount, Western half along East-facing slope
Dredge on bottom: UTC 18/08/10 07:26hrs, lat 01°05,62'N, long 90°42,24'W, depth 2067 m
Dredge off bottom: UTC 18/08/10 08:09hrs, lat 01°05,43'N, long 90°42,39'W, depth 1871 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Bryozoa	2	x								EtOH	different species
	Bryozoa	>10								15ml	EtOH	

SO208 - DR78: East of 91° transform fault; Northeast of Caldera I, Northeastern slope beneath circular cone
Dredge on bottom: UTC 18/08/10 10:49hrs, lat 01°01,75'N, long 90°38,20'W, depth 1793 m
Dredge off bottom: UTC 18/08/10 12:01hrs, lat 01°01,36'N, long 90°38,38'W, depth 1592 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	3	x								EtOH	
	Porifera	1	x									
	Porifera	1								15ml	EtOH	
	Cnidaria	2			x						EtOH	larger piece in F
	Cnidaria	3								10l	F	smaller piece in EtOH

SO208 - DR79: Eastern caldera on GSC; inner caldera wall, North-facing slope
Dredge on bottom: UTC 18/08/10 14:32hrs, lat 00°56,79'N, long 90°33,10'W, depth 1599 m
Dredge off bottom: UTC 18/08/10 15:20hrs, lat 00°56,56'N, long 90°33,20'W, depth 1516 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10	x								EtOH	
	Porifera ?	2	x								EtOH	
	Porifera	2	x								EtOH	
	Cnidaria	>10			x						F	Hydrozoa
	Cnidaria	>10			x						EtOH	
	Cnidaria	1								15ml	EtOH	Hydrozoa?? +?
	Cnidaria	3								15ml	EtOH	Hydrozoa?? + Crustacea
	Cnidaria	>10								15ml	EtOH	Hydrozoa ??
	Polychaeta	1	x								EtOH	
	Crustacea	1	x								EtOH	
	Crustacea	1	x								EtOH	
	Crustacea	1	x								EtOH	
	Crustacea	2	x								EtOH	
	Crustacea	1	x								EtOH	Decapoda
	Crustacea	1	x								EtOH	Decapoda
	Crustacea	>5							x		F	Cirripedia from ship hull
	Bryozoa?	1	x								EtOH	
	Bryozoa?	1	x								EtOH	
	Brachiopoda	1	x								EtOH	

SO208 - DR80: Split seamount on GSC, Southern half of seamount, North-facing steep flank
Dredge on bottom: UTC 18/08/10 18:06hrs, lat 00°55,45'N, long 90°24,01'W, depth 1560 m
Dredge off bottom: UTC 18/08/10 18:38hrs, lat 00°55,20'N, long 90°23,96'W, depth 1515 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10										
	Porifera	4										unsorted Porifera, different species
	Porifera	>10										unsorted Porifera, different species
	Cnidaria	1										Coronata
	Cnidaria ?	1										Hydrozoa?
	Polychaeta	1										
	Polychaeta	1										
	Polychaeta	1										
	Polychaeta	1										
	Crustacea	1										Cirripedia, without valves ???
	Bryozoa	1										
	Bryozoa	3										unsorted Bryozoa, different species

SO208 - DR81: GSC, in between split seamount, flat seafllor right between the two halves of the split seamount
Dredge on bottom: UTC 18/08/10 20:06hrs, lat 00°55,52'N, long 90°24,35'W, depth 1558 m
Dredge off bottom: UTC 18/08/10 20:33hrs, lat 00°55,46'N, long 90°24,10'W, depth 1569 m
gDr, no sediment, no macrofauna

SO208 - DR82: North of GSC; ridge parallel ridge (East-West-oriented), South-facing slope; ca. 12 km North of GSC, 15 nm East of DR 81
Dredge on bottom: UTC 18/08/10 23:35hrs, lat 01°02,66'N, long 90°12,96'W, depth 2404 m
Dredge off bottom: UTC 19/08/10 00:42hrs, lat 01°02,83'N, long 90°11,80'W, depth 2221 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x						EtOH	
	Porifera?	1	x								EtOH	
	Porifera	>5								15ml	EtOH	different species
	Porifera	7	x								EtOH	unsorted Porifera, different species
	Porifera	1	x								EtOH	
	Porifera	1	x								EtOH	
	Porifera	>10	x								EtOH	
	Porifera	5	x								EtOH	
	Cnidaria	1	x								EtOH	Coronata
	Cnidaria	3	x								EtOH	Hydrozoa
	Cnidaria	1	x								EtOH	Hydrozoa + Amphipoda
	Mollusca	1	x								EtOH	rinsed with freshwater, dry for 1 hour
	Mollusca	2	x								EtOH	
	Mollusca	1	x								EtOH	Polyplacophora
	Polychaeta	1	x								EtOH	
	Bryozoa	>5	x								EtOH	
	Bryozoa	>10	x								EtOH	
	Bryozoa	>5	x								EtOH	
	Bryozoa	>5	x								EtOH	unsorted Bryozoa, different species
	Bryozoa	>10	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	2	x								EtOH	both totally damaged
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	

SO208 - DR83: North of GSC; East-West striking ridge, 1,5 nm South-South-East of DR82
Dredge on bottom: UTC 19/08/10 02:43hrs, lat 01°01,24'N, long 90°12,20'W, depth 2285 m
Dredge off bottom: UTC 19/08/10 03:45hrs, lat 01°01,51'N, long 90°11,59'W, depth 2081 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x						EtOH	
	unsorted material	1					x				EtOH	** violet, slimy
	unsorted material	1							x		F	**violet, slimey, a small piece is fixed in EtOH
	Porifera ?	1	x								EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Porifera	1								15ml	EtOH	
	Cnidaria	1	x								EtOH	Coronata
	Mollusca	5	x								EtOH	Bivalvia
	Polychaeta	1	x								EtOH	in its tube
	Polychaeta	1	x								EtOH	in its tube
	Bryozoa	>10			x						EtOH	unsorted Bryozoa, different species
	Bryozoa? or Hydrozoa ?	1	x								EtOH	
	Bryozoa	3	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	

SO208 - DR84: North of GSC; Southwest of DR83, Easr-West striking ridge along its Southern slope, closest to the GSC
Dredge on bottom: UTC 19/08/10 06:12hrs, lat 00°58,86'N, long 90°17,68'W, depth 2121 m
Dredge off bottom: UTC 19/08/10 07:09hrs, lat 00°59,12'N, long 90°17,32'W, depth 1994 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x						EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Cnidaria	5	x								EtOH	Coronata
	Mollusca	10	x								EtOH	Bivalvia
	Mollusca	1	x								EtOH	*Neopilina?*
	Polychaeta ?	1	x								EtOH	
	Crustacea	1	x								EtOH	Amphipoda
	Crustacea	1	x								EtOH	
	Bryozoa	>10			x						EtOH	unsorted Bryozoa - different species
	Brachiopoda	1	x								EtOH	no larvae
	Brachiopoda	1	x								EtOH	no larvae
	Brachiopoda	1	x								EtOH	no larvae
	Brachiopoda	2	x								EtOH	both damaged
	Brachiopoda	1	X								EtOH	
	Brachiopoda	1	X								EtOH	
	Brachiopoda	3	X								EtOH	
	Brachiopoda	1	X								EtOH	
	Brachiopoda	1	X								EtOH	
	Brachiopoda	2	X								EtOH	
	Brachiopoda	2	X								EtOH	
	Brachiopoda	1	X								EtOH	
	Brachiopoda	1	X								EtOH	
	Brachiopoda	1	X								EtOH	
	Brachiopoda	1	X								EtOH	
	Brachiopoda	1	X								EtOH	

SO208 - DR85: Northern part of 2nd split seamount, steep South-facing slope of seamount just North of GSC
Dredge on bottom: UTC 19/08/10 18:44hrs, lat 00°49,64'N, long 89°31,70'W, depth 1845 m
Dredge off bottom: UTC 19/08/10 18:44hrs, lat 00°49,64'N, long 89°31,70'W, depth 1845 m
gDr, no sediment, no macrofauna

SO208 - DR86: North of GSC, East-West trending ridge, ca 6 km North of active ridge, North-facing slope
Dredge on bottom: UTC 19/08/10 21:25hrs, lat 00°52,74'N, long 89°33,34'W, depth 2137 m
Dredge off bottom: UTC 19/08/10 21:58hrs, lat 00°52,49'N, long 89°33,18'W, depth 2070 m
gDr, no sediment, no macrofauna

SO208 - DR87: 2 split seamount, Northern half of seamount, North-facing flank, site North of DR85
Dredge on bottom: UTC 19/08/10 23:58hrs, lat 00°50,75'N, long 89°31,88'W, depth 1958 m
Dredge off bottom: UTC 20/08/10 01:05hrs, lat 00°50,27'N, long 89°31,85'W, depth 1674 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x						EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Echinodermata	1	x								EtOH	Ophiuroidea
	Polychaeta	1	x								EtOH	in its tube
	Polychaeta	1	x								EtOH	in its tube
	Mollusca	2	x								EtOH	Bivalvia
	Bryozoa	>5	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	open
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	

SO208 - DR88: North of GSC, second major ridge North of GSC, North of DR86, North-facing slope
Dredge on bottom: UTC 20/08/10 03:20hrs, lat 00°54,06'N, long 89°34,97'W, depth 2244 m
Dredge off bottom: UTC 20/08/10 04:18hrs, lat 00°53,77'N, long 89°34,76'W, depth 2095 m
gDr, no sediment,no macrofauna

SO208 - DR89: Lava flow infilling graben structure (depression); East-West trending structure parallel to GSC towards the North, dredging at North-West-facing slope
Dredge on bottom: UTC 20/08/10 06:52hrs, lat 00°53,37'N, long 89°28,87'W, depth 2185 m
Dredge off bottom: UTC 20/08/10 07:38hrs, lat 00°53,03'N, long 89°28,76'W, depth 2056 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x						EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Cnidaria	4	x								EtOH	Coronata
	Mollusca	1	x								EtOH	Bivalvia
	Bryozoa	>10			x						EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	damaged
	Brachiopoda	2	x								EtOH	
	Brachiopoda	1	x								EtOH	totally damaged
	Brachiopoda	1	x								EtOH	totally damaged

SO208 - DR90: 1 nm North of DR89, East-West striking trough North of small lava field, North-facing slope
Dredge on bottom: UTC 20/08/10 09:23hrs, lat 00°53,91'N, long 89°27,87'W, depth 2296 m
Dredge off bottom: UTC 20/08/10 10:18hrs, lat 00°53,59'N, long 89°27,99'W, depth 2136 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Cnidaria	6	x								EtOH	Coronata
	Bryozoa	>5	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	damaged
	Brachiopoda	1	x								EtOH	damaged
	Brachiopoda	1	x								EtOH	1 cm, just dorsal valve !?
	Brachiopoda	1	x								EtOH	

SO208 - DR91: 2 nm North-North-West of DR90; East-West striking trough, South-facing slope beneath small cone
Dredge on bottom: UTC 20/08/10 12:21hrs, lat 00°55,20'N, long 89°29,15'W, depth 2214 m
Dredge off bottom: UTC 20/08/10 13:35hrs, lat 00°55,36'N, long 89°28,89'W, depth 2115 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	1	x								EtOH	
	Porifera	>5	x								EtOH	unsorted Porifera, different species
	Bryozoa	>5	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	totally damaged

SO208 - DR92: North of GSC; 5 nm North of DR91, East-West striking ridge, North-facing slope
Dredge on bottom: UTC 20/08/10 15:39hrs, lat 00°57,63'N, long 89°28,92'W, depth 2373 m
Dredge off bottom: UTC 20/08/10 16:51hrs, lat 00°57,52'N, long 89°28,79'W, depth 2325 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	3	x								EtOH	unsorted Porifera, different species
	Cnidaria	1	x								EtOH	
	Bryozoa	2	x								EtOH	

SO208 - MUC93: 9 nm North of ridge axis, top area of an abyssal high
MUC on bottom: UTC 20/08/10 18:48hrs, lat 00°58,41'N, long 89°28,92'W, depth 2291 m
MUC off bottom: UTC 20/08/10 18:50hrs, lat 00°58,41'N, long 89°28,92'W, depth 2296 m
MUC, sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	"Pisces"	1	x								EtOH	

SO208 - DR94: seamount cluster North of GSC; 5 nm North-North-West of MUC93, irregular shaped seamount, Northwest-facing slope
Dredge on bottom: UTC 20/08/10 21:04hrs, lat 01°02,30'N, long 89°31,84'W, depth 2295 m
Dredge off bottom: UTC 20/08/10 21:50hrs, lat 01°02,12'N, long 89°31,50'W, depth 2203 m
gDr, no sediment, no macrofauna

SO208 - DR95: Ridge structure North of GSC, sharp North-facing slope of broad East-West striking horst structure, 4 nm Northeast of DR94
Dredge on bottom: UTC 21/08/10 00:03hrs, lat 01°03,30'N, long 89°28,12'W, depth 2404 m
Dredge off bottom: UTC 21/08/10 00:54hrs, lat 01°03,01'N, long 89°27,99'W, depth 2265 m
gDr, no sediment, no macrofauna

SO208 - DR96: Ridge structure North of GSC; same ridge as DR95, North-facing slope, Northwest of DR95
Dredge on bottom: UTC 21/08/10 03:02hrs, lat 01°03,55'N, long 89°30,36'W, depth 2378 m
Dredge off bottom: UTC 21/08/10 03:45hrs, lat 01°03,28'N, long 89°30,20'W, depth 2280 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5			x						EtOH	
	Porifera	4			x						EtOH	unsorted Porifera, different species
	Cnidaria	1	x								EtOH	Coronata
	Bryozoa	4	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	damaged, open, no larvae
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	

SO208 - DR97: Ridge 2 nm North of DR98, East-West striking trough, North-facing slope
Dredge on bottom: UTC 21/08/10 06:08hrs, lat 01°05,89'N, long 89°30,05'W, depth 2314 m
Dredge off bottom: UTC 21/08/10 07:05hrs, lat 01°05,55'N, long 89°30,00'W, depth 2230 m
gDr, no sediment, no macrofauna

SO208 - DR98: Northernmost location of profile II; North-facing slope of East-West striking ridge
Dredge on bottom: UTC 21/08/10 09:42hrs, lat 01°15,43'N, long 89°30,08'W, depth 2263 m
Dredge off bottom: UTC 21/08/10 10:19hrs, lat 01°15,20'N, long 89°29,96'W, depth 2165 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	>10			x							
	Mollusca	2	x								EtOH	Bivalvia
	Bryozoa	>5	x								EtOH	
	Brachiopoda	1	x								EtOH	damaged
	Brachiopoda	2	x								EtOH	
	Brachiopoda	3	x								EtOH	
	Tunicata?	3	x								EtOH	Ascidia?

SO208 - DR99: 1 nm North of active spreading ridge of GSC; probably in the off set zone of the ridge axis
Dredge on bottom: UTC 21/08/10 17:23hrs, lat 00°47,37'N, long 89°14,42'W, depth 1730 m
Dredge off bottom: UTC 21/08/10 17:50hrs, lat 00°47,37'N, long 89°14,19'W, depth 1734 m
gDr, no sediment, no macrofauna

SO208 - DR100: Directly on GSC, age "0", 1 nm South of DR99; subtle graben structure, dredging along floor
Dredge on bottom: UTC 21/08/10 19:16hrs, lat 00°47,13'N, long 89°14,52'W, depth 1715 m
Dredge off bottom: UTC 21/08/10 20:10hrs, lat 00°47,06'N, long 89°14,14'W, depth 1720 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	2	x								EtOH	
	Mollusca	3	x								EtOH	Monoplacophora ??

SO208 - DR101: GSC East of SO158 DR25; spreading axis form very small East-West striking rift valley to West rift valley; out of ca SO158 DR25, axis then jumps South and turns into ridge-type axis further West
Dredge on bottom: UTC 22/08/10 04:09hrs, lat 00°48,48'N, long 89°04,68'W, depth 1770 m
Dredge off bottom: UTC 22/08/10 05:05hrs, lat 00°48,24'N, long 89°04,41'W, depth 1762 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5			x						EtOH	
	Cnidaria	1	x								EtOH	Coronata
	Crustacea	1	x								EtOH	Cirripedia
	Brachiopoda	1								15ml	EtOH	

SO208 - DR102: North of Eastern GSC, Northernmost end of profile II; oval shaped seamount within East-West striking trough, surrounded by other small cones
Dredge on bottom: UTC 22/08/10 12:10hrs, lat 01°35,71'N, long 89°05,27'W, depth 2513 m
Dredge off bottom: UTC 22/08/10 13:15hrs, lat 01°35,37'N, long 89°05,02'W, depth 2322 m
gDRr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	1	x								EtOH	
	Porifera	1								15ml	EtOH	
	Cnidaria	1	x								EtOH	Coronata
	Cnidaria	1	x								EtOH	Hydrozoa
	Crustacea	1	x								EtOH	Amphipoda?

SO208 - DR103: Seamount 86 km North of Eastern GSC, 3/4 South of DR102, Southwest facing slope
Dredge on bottom: UTC 22/08/10 15:17hrs, lat 01°35,01'N, long 89°05,47'W, depth 2495 m
Dredge off bottom: UTC 22/08/10 16:15hrs, lat 01°35,34'N, long 89°05,16'W, depth 2314 m
gDr, no sediment, no macrofauna

SO208 - DR104: 85 km North of Eastern GSC; East-West-striking ridge, 2,5 km Southeast of DR103, North-facing slope with small elevation/seamount on top
Dredge on bottom: UTC 22/08/10 18:13hrs, lat 01°34,16'N, long 89°04,58'W, depth 2537 m
Dredge off bottom: UTC 22/08/10 19:05hrs, lat 01°33,69'N, long 89°04,53'W, depth 2354 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	>3	x								EtOH	unsorted Porifera, different species
	Cnidaria	2	x								EtOH	Coronata
	Bryozoa	>5			x						EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Tunicata ?	1								15ml	EtOH	Ascidia?

SO208 - DR105: Cluster of seamounts; 56 km North of Eastern GSC, irregular shape of seamount, Northwest-facing slope
Dredge on bottom: UTC 22/08/10 23:36hrs, lat 01°18,88'N, long 89°09,14'W, depth 2290 m
Dredge off bottom: UTC 23/08/10 00:47hrs, lat 01°18,47'N, long 89°09,88'W, depth 2188 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5			x						EtOH	
	Porifera	>5			x						EtOH	unsorted Porifera, different species
	Cnidaria	1	x								EtOH	Coronata
	Bryozoa	1	x								EtOH	
	Brachiopoda	2	x								EtOH	totally damaged
	Brachiopoda	2	x								EtOH	
	Brachiopoda	1	x								EtOH	

SO208 - DR106: Ridge, 50 km North of Eastern GSC; Est-West striking ridge, North-facing slope
Dredge on bottom: UTC 23/08/10 03:08hrs, lat 01°15,30'N, long 89°13,39'W, depth 2448 m
Dredge off bottom: UTC 23/08/10 04:11hrs, lat 01°15,04'N, long 89°13,23'W, depth 2200 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	>5	x								EtOH	unsorted Porifera, different species
	Porifera	1							x		F	smaller piece fixed in EtOH
	Porifera	1					x				EtOH	larger piece fixed in F
	Cnidaria	1	x								EtOH	Coronata
	Bryozoa	1	x								EtOH	
	Brachiopoda	3	x								EtOH	one specimen damaged
	Brachiopoda	1	x								EtOH	

SO208 - DR107: North of GSC, profile II middle part; East-West striking plateau structure with small cones in central part, Southern part cut by fault, track along Southwest flank
Dredge on bottom: UTC 23/08/10 08:39hrs, lat 01°04,59'N, long 89°06,20'W, depth 2320 m
Dredge off bottom: UTC 23/08/10 09:52hrs, lat 01°04,88'N, long 89°04,74'W, depth 2163 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5			x						EtOH	
	Porifera	>10			x						EtOH	
	Porifera	1				x					EtOH	
	Cnidaria	2	x								EtOH	Coronata
	Cnidaria ?	1	x								EtOH	Actinaria?
	Mollusca	1	x								EtOH	Bivalvia
	Sipunculida	1			x						EtOH	
	Polychaeta	1	x								EtOH	
	Polychaeta	2	x								EtOH	
	Bryozoa	>3	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Tunicata?	1	x								EtOH	Ascidia ?

SO208 - DR108: 4 nm South-South-West of DR107; East-West striking fault, South-facing slope
Dredge on bottom: UTC 23/08/10 12:10hrs, lat 01°00,43'N, long 89°07,44'W, depth 2400 m
Dredge off bottom: UTC 23/08/10 13:13hrs, lat 01°00,68'N, long 89°07,12'W, depth 2248 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x						EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Polychaeta	1								15ml	EtOH	
	Bryozoa	> 5	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	
	Brachiopoda	2	x								Bouin	
	Brachiopoda	1	x								Bouin	
	Brachiopoda	1	x								Bouin	
	Brachiopoda	1	x								EtOH	totally damaged

SO208 - DR109: Ridge, 4 nm South of DR108, North-facing slope, 18km North of Eastern GSC
Dredge on bottom: UTC 23/08/10 15:34hrs, lat 00°57,48'N, long 89°10,10'W, depth 2439 m
Dredge off bottom: UTC 23/08/10 16:27hrs, lat 00°57,18'N, long 89°10,84'W, depth 2253 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Echinodermata								x		F	arm tip fixed in EtOH
	Echinodermata					x					EtOH	larger part fixed in F

SO208 - DR110: Seamount-cluster, North of Eastern GSC; irregular shaped edifice, 3,5 nm Southeast of DR109, North-facing flank up to highest peak
Dredge on bottom: UTC 23/08/10 18:54hrs, lat 00°55,24'N, long 89°06,74'W, depth 2232 m
Dredge off bottom: UTC 23/08/10 19:57hrs, lat 00°54,74'N, long 89°06,70'W, depth 2020 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5			x						EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Mollusca	1	x								EtOH	4
	Cnidaria	2	x								EtOH	Coronata
	Bryozoa	2	x								EtOH	unsorted Bryozoa, different species

SO208 - DR111: Near main Eastern GSC; North-facing slope of irregularly shaped East-West trending elevation
Dredge on bottom: UTC 23/08/10 21:58hrs, lat 00°49,55'N, long 89°07,24'W, depth 1872 m
Dredge off bottom: UTC 23/08/10 22:50hrs, lat 00°49,36'N, long 89°06,89'W, depth 1788 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	2									EtOH	unsorted Porifera, different species
	Cnidaria	2									EtOH	Coronata

SO208 - DR112: South of Eastern GSC; irregular elevation with a flat topped hill, 4 nm South of DR111, West-facing slope
Dredge on bottom: UTC 24/08/10 00:46hrs, lat 00°45,37'N, long 89°08,53'W, depth 2040 m
Dredge off bottom: UTC 24/08/10 01:34hrs, lat 00°45,35'N, long 89°08,24'W, depth 1960 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	2	x								EtOH	
	Porifera	>5	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								Bouin	

SO208 - DR113: South of Eastern GSC; East-West striking step in seafloor topography, South-facing slope
Dredge on bottom: UTC 24/08/10 04:12hrs, lat 00°39,11'N, long 89°10,90'W, depth 2446 m
Dredge off bottom: UTC 24/08/10 01:01hrs, lat 00°39,33'N, long 89°10,63'W, depth 2295 m
gDR, no sediment, no macrofauna

SO208 - DR114: South of Eastern GSC; East-West striking scarp South of seamount structure
Dredge on bottom: UTC 24/08/10 08:41hrs, lat 00°22,01'N, long 89°07,88'W, depth 2290 m
Dredge off bottom: UTC 24/08/10 09:57hrs, lat 00°22,36'N, long 89°07,50'W, depth 2049 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x							
	Porifera	>10			x							unsorted Porifera, different species
	Porifera	1			x							
	Cnidaria ?	1	x									Hydrozoa ?
	Cnidaria	4	x									Coronata
	Mollusca	1	x								EtOH	Polyplacophora
	Mollusca	1	x								EtOH	Bivalvia
	Mollusca	1	x								EtOH	Monoplacophora ?
	Polychaeta ????	1	x								EtOH	
	Polychaeta	1	x								EtOH	
	Crustacea	1	x								EtOH	Cirripedia
	Bryozoa	>5	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								EtOH	
	Brachiopoda	1	x								Bouin	
	Brachiopoda/ Mollusca	1	x								EtOH	Brachiopoda or Bivalvia, damaged
	Brachiopoda	1	x								EtOH	damaged
	Tunicata ?	>5			x						EtOH	unsorted Ascidia, different species

SO208 - DR115: South of Eastern GSC; irregular shaped seamount on top of faulted block of DR114, Northwest-facing slope
Dredge on bottom: UTC 24/08/10 12:05hrs, lat 00°24,35'N, long 89°07,90'W, depth 2158 m
Dredge off bottom: UTC 24/08/10 13:25hrs, lat 00°23,98'N, long 89°07,62'W, depth 1815 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>5	x								EtOH	
	Porifera	>5	x								EtOH	unsorted Porifera, different species
	Bryozoa	>5	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	
	Tunicata ?	1	x								EtOH	Ascidia?

SO208 - MUC116: Plain South of Eastern GSC
MUC on bottom: UTC 24/08/10 16:07hrs, lat 00°25,71'N, long 89°02,27'W, depth 2256 m
MUC off bottom: UTC 24/08/10 16:09hrs, lat 00°25,71'N, long 89°02,26'W, depth 2252 m
MUC, sediment, no macrofauna

SO208 - DR117: South of Eastern GSC; basin-like depression extending East-West, North-facing slope, 20 km South of GSC
Dredge on bottom: UTC 24/08/10 19:00hrs, lat 00°37,18'N, long 89°01,56'W, depth 2488 m
Dredge off bottom: UTC 24/08/10 20:10hrs, lat 00°36,62'N, long 89°01,39'W, depth 2306 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x						EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Porifera	1							x		EtOH	
	Cnidaria	4	x								EtOH	Coronata
	Mollusca	1	x								EtOH	Bivalvia
	Bryozoa	>5	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	4	x								EtOH	parts of possibly 3 totally damaged brachiopods
	Brachiopoda	1	x								EtOH	
	Brachiopoda	3	x								EtOH	
	Brachiopoda	3									EtOH	
	Brachiopoda	1									EtOH	
	Brachiopoda	3									EtOH	
	Brachiopoda	3									Bouin	
	Brachiopoda	1									EtOH	
	Brachiopoda	2									EtOH	
	Brachiopoda	1									EtOH	
	Brachiopoda	2									Bouin	
	Brachiopoda	2									EtOH	
	Brachiopoda	1									EtOH	
	Brachiopoda	1									EtOH	open, eggs in Glu 2.5 %

SO208 - DR118: Small elevation near ridge-edge, South of Eastern GSC, Northwest-facing flank, 11 km South of GSC
Dredge on bottom: UTC 24/08/10 23:06hrs, lat 00°39,24'N, long 89°01,07'W, depth 2520 m
Dredge off bottom: UTC 25/08/10 00:04hrs, lat 00°38,95'N, long 89°00,87'W, depth 2263 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x						EtOH	
	Porifera	1			x						EtOH	
	Porifera	1			x						EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Bryozoa	>5	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	2	x								EtOH	
	Brachiopoda	1	x								GLU	damaged, open
	Brachiopoda	1	x								GLU	open
	Tunicata?	2	x								EtOH	Ascidia?

SO208 - DR119: South of Eastern GSC, East-West striking scarp, South-facing slope
Dredge on bottom: UTC 25/08/10 06:44hrs, lat 00°39,32'N, long 88°23,83'W, depth 2264 m
Dredge off bottom: UTC 25/08/10 07:44hrs, lat 00°39,69'N, long 88°23,56'W, depth 2112 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	unsorted material	>10			x						EtOH	
	Porifera	>10			x						EtOH	unsorted Porifera, different species
	Cnidaria	4	x								EtOH	Coronata
	Cnidaria	2			x						EtOH	***a larger piece fixed in F
	Cnidaria	1									EtOH	***2 small pieces fixed in EtOH
	Cnidaria ?	1								15	EtOH	Hydrozoa ?
	Mollusca	2	x								EtOH	Bivalvia
	Bryozoa	>10			x						EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	totally damaged
	Brachiopoda	1									GLU	open
	Brachiopoda	3									EtOH	
	Brachiopoda	2									EtOH	
	Brachiopoda	4									EtOH	one totally damaged

SO208 - DR120: North of GSC at former SO158 DR19 station; Northwest-facing slope of East-West striking plateau edge
Dredge on bottom: UTC 25/08/10 11:46hrs, lat 00°50,69'N, long 88°21,55'W, depth 2530 m
Dredge off bottom: UTC 25/08/10 13:02hrs, lat 00°50,31'N, long 88°21,24'W, depth 2279 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	>5	x								EtOH	unsorted Porifera, different species
	Cnidaria	1	x								EtOH	Coronata
	Bryozoa	2	x								EtOH	unsorted Bryozoa, different species
	Brachiopoda	1	x								EtOH	

SO208 - DR121: Eastern GSC; directly along central East-West striking spreading ridge axis
Dredge on bottom: UTC 25/08/10 16:27hrs, lat 00°43,94'N, long 88°14,07'W, depth 1966 m
Dredge off bottom: UTC 25/08/10 17:12hrs, lat 00°43,89'N, long 88°13,66'W, depth 1970 m
gDr, no sediment, no macrofauna

SO208 - DR122: Axial seamount; "donut" shaped seamount, Northwestern flank dredged
Dredge on bottom: UTC 25/08/10 22:25hrs, lat 00°43,70'N, long 87°45,70'W, depth 2145 m
Dredge off bottom: UTC 26/08/10 00:30hrs, lat 00°43,60'N, long 87°45,36'W, depth 1931 m
gDr, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Polychaeta	1	x								EtOH	in its tube
	Polychaeta	1	x								EtOH	

SO208 - TVG123: Axial seamount; continuation of dredge track from rim down into the crater
Dredge on bottom: UTC 26/08/10 02:10hrs, lat 00°43,43'N, long 87°45,28'W, depth 1939 m
Dredge off bottom: UTC 26/08/10 03:17hrs, lat 00°42,95'N, long 87°45,22'W, depth 1913 m
gDr, no ediment, no macrofauna

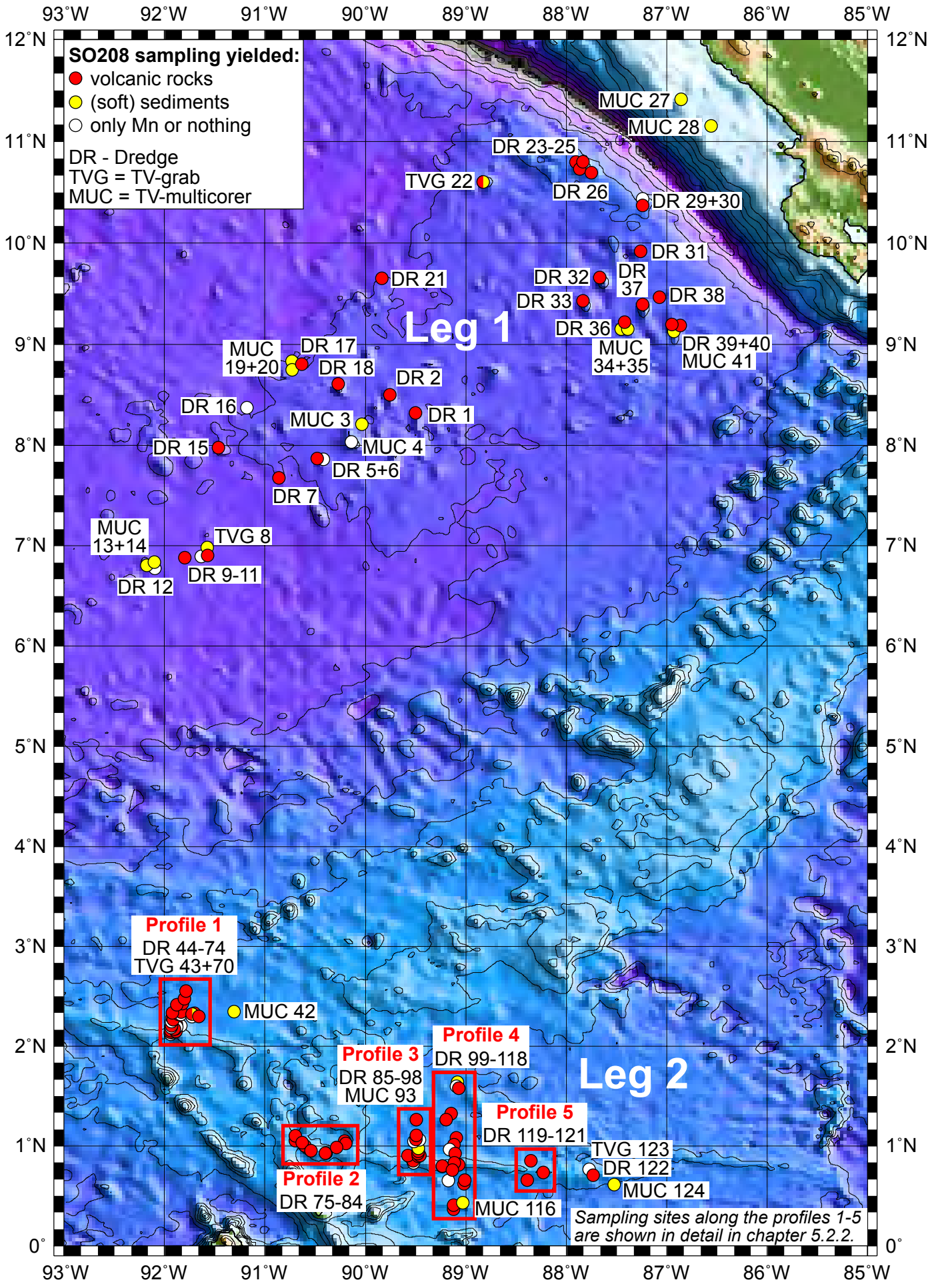
SO208 - MUC124: South of GSC
Dredge on bottom: UTC 26/08/10 06:48hrs, lat 00°36,54'N, long 87°31,66'W, depth 2494 m
Dredge off bottom: UTC 26/08/10 06:49hrs, lat 00°36,54'N, long 87°31,66'W, depth 2490 m
gDr, sediment, no macrofauna

Posidonia-Antenna, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Porifera	1	x									
	Cnidaria	1	x								EtOH	Anthozoa/Actinaria?
	Cnidaria	2	x								EtOH	Anthozoa/Actinaria?
	Cnidaria	>5	x								EtOH	Hydrozoa
	Cnidaria + Crustacea	>10			x						EtOH	Hydrozoa + Amphipoda
	Cnidaria + Crustacea	1	x								EtOH	Hydrozoa + Amphipoda
	Cnidaria + Crustacea	>10				x					F	Hydrozoa + Amphipoda
	Mollusca	1	x								EtOH	Gastropoda
	Mollusca	1	x								EtOH	Bivalvia
	Polychaeta	1	x								EtOH	
	Crustacea	3								15ml	EtOH	Cirripedia - Entenmuscheln
	Crustacea+Cnidaria	1								15ml	EtOH	Cirripedia - Entenmuschel with Hydrozoa
	Crustacea	3			x						EtOH	Cirripedia-barnacle with Bryozoa and Hydrozoa
	Crustacea	1	x								EtOH	Cirripedia - Entenmuschel (without shell)
	Crustacea	3	x								F	Amphipoda
	Crustacea	1	x								EtOH	Amphipoda
	Crustacea	1	x								EtOH	Amphipoda
	Crustacea	>50	x								EtOH	Amphipoda, different species
	Crustacea	4	x								F	Pantopoda
	Crustacea	1	x								EtOH	
	Crustacea	4	x								EtOH	Pantopoda
	Crustacea	1								15ml	F	Cirripedia (Entenmuschel)
	Crustacea	5			x						F	Cirripedia (Seepocken)
	Crustacea	1								15ml	EtOH	Decapoda
	Bryozoa	1	x								EtOH	
	Bryozoa	3			x						EtOH	
	Bryozoa	1	x								EtOH	
	Bryozoa	1	x								EtOH	

Caldera - beach, no sediment, macrofauna

	TAXA	n	2	5	50	100	200	500	1000	other	FIX	NOTES
Makrofauna	Cnidaria	1								15ml	EtOH	Actinaria?
	Mollusca	1					x				EtOH	Polyplacophora


SO208 sampling yielded:
volcanic rocks
(soft) sediments
only Mn or nothing
DR - Dredge
TVG = TV-grab
MUC = TV-multicorer
Leg 1
Leg 2
MUC 27
MUC 28
DR 23-25
TVG 22
DR 26
DR 29+30
DR 31
DR 32
DR 37
DR 33
DR 38
DR 36
MUC 34+35
DR 39+40
MUC 41
DR 21
DR 17
MUC 19+20
DR 18
DR 2
DR 16
MUC 3
DR 1
DR 15
MUC 4
DR 5+6
DR 7
MUC 13+14
TVG 8
DR 9-11
DR 12
Profile 1
DR 44-74
TVG 43+70
MUC 42
Profile 4
DR 99-118
Profile 3
DR 85-98
MUC 93
Profile 5
DR 119-121
TVG 123
DR 122
MUC 124
Profile 2
DR 75-84
MUC 116
Sampling sites along the profiles 1-5 are shown in detail in chapter 5.2.2.
93°W
92°W
91°W
90°W
89°W
88°W
87°W
86°W
85°W
12°N
11°N
10°N
9°N
8°N
7°N
6°N
5°N
4°N
3°N
2°N
1°N
0°

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